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PAPER TRADE JOURNAL

VOL. 122 NO. 26 JUNE 27, 1946

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OPA Ups Fiber Box Ceiling 10 Per Cent
Dispute Stops Work at Oxford Mill
Patchogue Plymouth Buys Ashuelot
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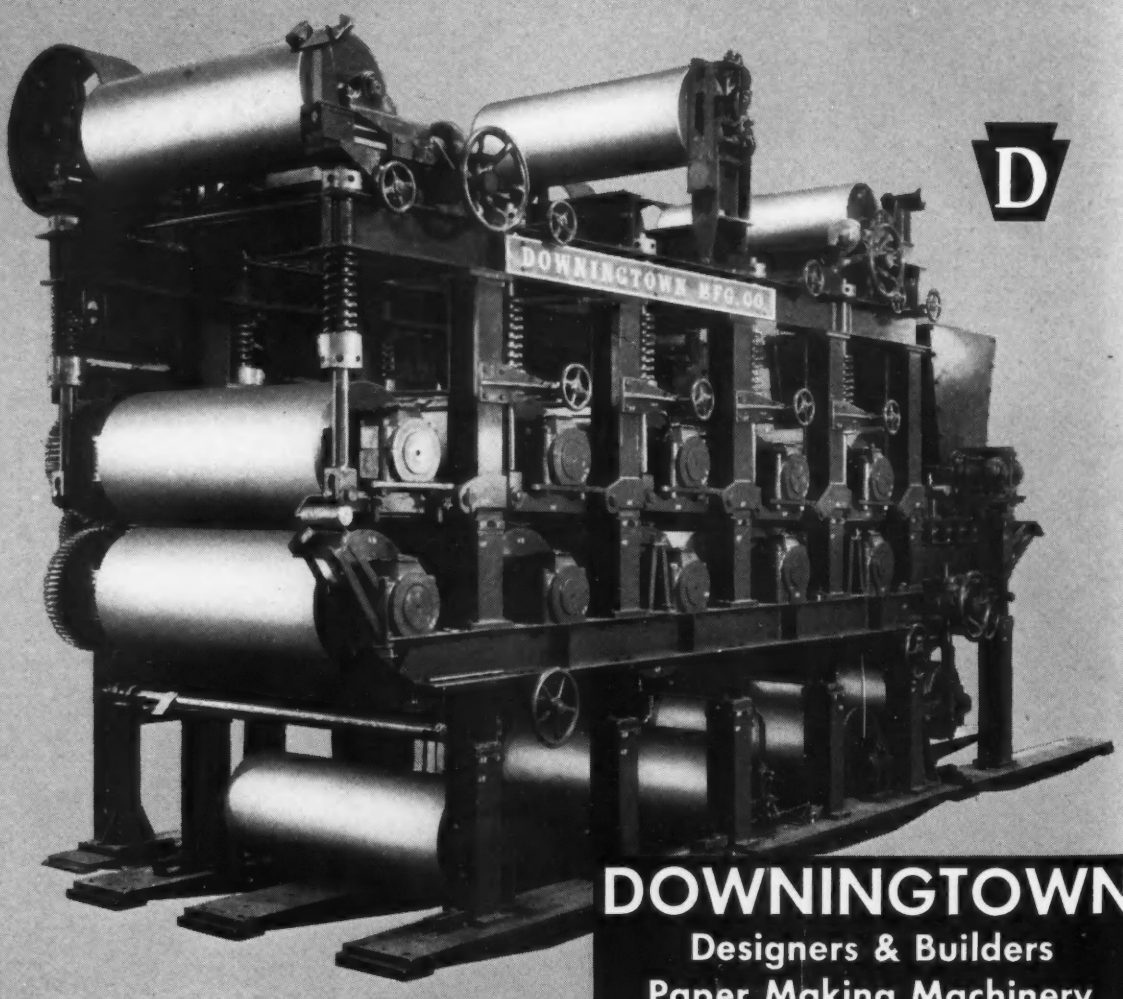

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DOWNINGTOWN
Designers & Builders
Paper Making Machinery

PAPER TRADE JOURNAL

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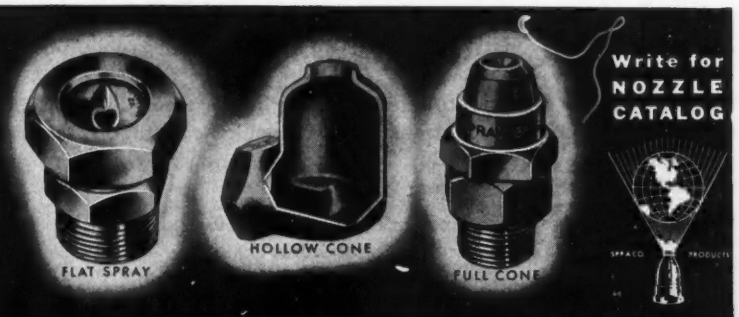

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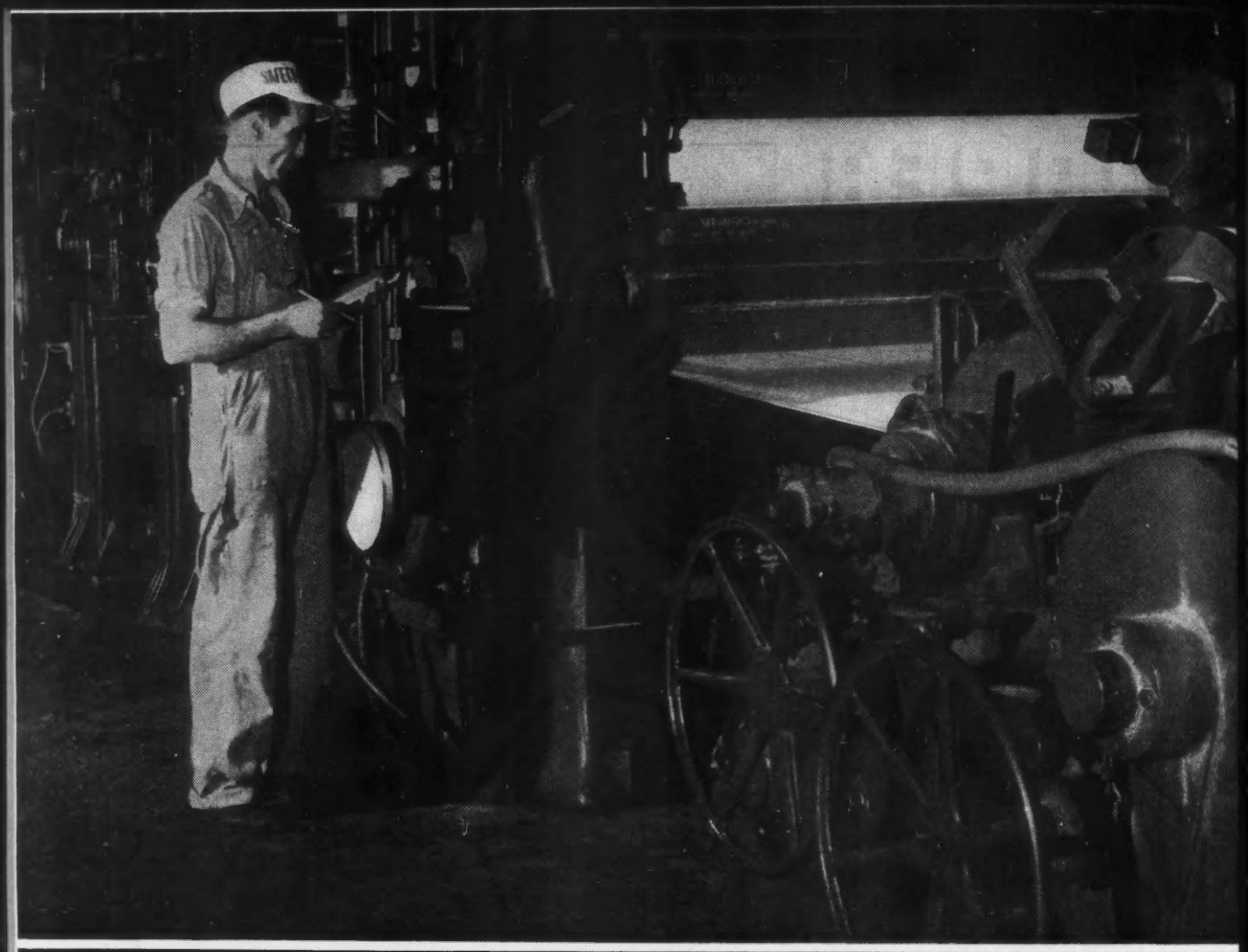

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Replaces Messy Black Compounds, Cuts Lubrication Costs 50%

A New England paper mill was using a messy black lubricating compound on various paper-making machines, and was not getting satisfactory lubrication.

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INDUSTRIAL PRODUCTS

PAPER TRADE JOURNAL
Vol. 122, No. 26 June 27, 1946
Title Reg. U. S. Pat. Off.

Fiber Box Ceilings Upped 10 Per Cent

WASHINGTON, D. C. — Manufacturers' ceiling prices for corrugated and solid fiber boxes, pads and partitions were increased an average of ten per cent by the Office of Price Administration this week. The increase, effective July 1, 1946, is designed to stop a trend among manufacturers to discontinue sales with low "freeze" margins, thus causing many buyers to go to other sources of supply, invariably at higher cost.

On sales representing the bulk of volume, the existing formula is changed so that manufacturers may use current raw material costs and the weighted average of their margins in March 1946 or in the first quarter of 1946, whichever they prefer to use. This change will result in price increases averaging ten per cent. Previously the formula required the use of raw material costs for March 31, 1943, and the October 1-15, 1941, base period margin of each manufacturer for each class of customer.

A ten-percent increase is granted outright in the case of garment boxes, for which new dollar-and-cent ceilings are listed containing the additional ten per cent, and also in the case of manufacturers who use their base period price lists as their ceilings.

Users of corrugated and solid fiber boxes, who are largely industrial firms, will absorb the increase, OPA said.

Jacksonville Chamber Honors C. G. McGehee

JACKSONVILLE, Fla. — Clifford G. McGehee, president of the Jacksonville Paper Company and prominent in civic affairs for many years, has been elected first vice-president of the Jacksonville Chamber of Commerce. Mr. McGehee will direct the work of the educational, military affairs, fire prevention and naval affairs committees of the Chamber, it was stated.

Holyoke Still Expects Newsprint Increase

HOLYOKE, Mass. — Holyoke paper mill sources reported last week that another $4 a ton increase in the price of newsprint is in the works. Although the OPA turned down such an advance last week, it is reported authentically in Washington, they said, that it will change its tune shortly. One of the reasons given is need to give the mills more money to check the diversion of supplies to foreign countries.

Congress Awards Contracts For Government's Paper

WASHINGTON, D. C. — The Joint Congressional Committee on Printing on Monday of this week awarded paper contracts for the Government Printing Office for the three months' period beginning July first. The bids were received June 17. The awards were as follows on items listed in these pages last week. Those on which no bids were received have been omitted. The numbers correspond with those on the list previously published.

No. 3, Frank Parsons Paper Co., Inc., 8.92 cents.

No. 4, Frank Parsons Paper Co., Inc., 8.92 cents.

No. 5, Frank Parsons Paper Co., Inc., 8.92 cents.

No. 7, Mudge Paper Co., 7.59 cents (150,000 pounds).

No. 8, Mudge Paper Co., 7.59 cents (150,000 pounds).

No. 9, Barton, Duer & Koch Paper Co., 7.59 cents (200,000 pounds).

No. 19, Mudge Paper Co., 9.92 cents (100,000 pounds); Central Ohio Paper Co., 9.92 cents (50,000 pounds).

No. 20, Franklin Research Co., 10.50 cents.

No. 22, Mead Sales Co., 7.57 cents.

No. 34, R. P. Andrews Paper Co., 7.51 cents.

No. 37, Barton, Duer & Koch Paper Co., 7.82 cents.

No. 38, Barton, Duer & Koch Paper Co., 7.28 cents.

No. 40, Consolidated Water Power & Paper Co., 9.232 cents.

No. 42, Stanford Paper Co., 11.74 cents.

No. 45, R. P. Andrews Paper Co., 7.91 cents (400,000 pounds); Barton, Duer & Koch Paper Co., 7.61 cents (400,000 pounds).

No. 46, Cauthorne Paper Co., 9.25 cents.

No. 47, Old Dominion Paper Co., 10.84 cents (200,000 pounds); Howard Paper Mills, Inc., 10.18 cents (100,000 pounds).

No. 48, Eastern Corp., 10.23 cents.

No. 50, R. P. Andrews Paper Co., 14.25 cents (125,000 pounds); D. L. Ward Co., 13.94 cents (100,000 pounds).

No. 52, D. L. Ward Co., 12.31 cents.

No. 53, R. P. Andrews Paper Co., 8.49 cents (200,000 pounds); Whitaker Paper Co., 8.73 cents (300,000 pounds); D. L. Ward Co., 9.94 cents (500,000 pounds); Frank Parsons Paper Co., Inc., 8.49 cents (500,000 pounds).

No. 55, R. P. Andrews Paper Co., 7.47 cents (450,000 pounds).

No. 61, Barton, Duer & Koch Paper Co., 8.49 cents and 9.45 cents (400,000 pounds).

No. 66, Barton, Duer & Koch Paper Co., 19.55 cents (40,000 pounds).

No. 71, Graham Paper Co., 13.33 cents.

No. 73, Rejected.

No. 76, Paper Corp. of U. S., 25.06 cents.

No. 78, Old Dominion Paper Co., 25.487 cents.

No. 84, Paper Corp, of U. S., 38.53 cents.

No. 85, Barton, Duer & Koch Paper Co., 29.00 cents.

No. 102, Eastern Corp., 9.26 cents.

No. 103, Eastern Corp., 10.67 cents.

No. 105, Howard Paper Mills, Inc., 17.83 cents.

No. 106, Howard Paper Mills, Inc., 14.23 cents and 14.73 cents.

(Continued on page 10)

International Buys Pure-Pak Stock

NEW YORK, N. Y.—John H. Hinman, president of International Paper Company, disclosed on Tuesday that the company had purchased the entire capital stock of Single Service Containers, Inc., which has been engaged in the manufacture of Pure-Pak paper milk containers in plants at Philadelphia and Kalamazoo. In addition to the production and sale of milk containers, Single Service provides its customers with the other materials — such as paraffin wax, adhesive, and stitching wire—required for finishing the milk containers.

International Paper Company is the major supplier to Single Service of the bleached kraft board used in fabricating their milk containers.

International will operate the plants with the present organization of Single Service Containers, Inc., along the lines which have been followed in the past, and will continue to supply the present customers of Single Service Containers, Inc.

Chicago Trade Meets Heavy Demands

CHICAGO — Hesitant over the final outcome of the Emergency Price Control Act, though seemingly convinced that the industry could make greater production strides without control than with it, local trade spent another week faced with terrific demand yet with a surprisingly inspired ability to meet that demand. Inventories, according to reports, took on a better tone and the production record of the industry during the past week likewise seemed to impart a more optimistic outlook.

Last week's waste paper collections were reported in line with those of the preceding period with all supplies readily taken at ceilings. One quarter said that mills were not getting as much materials as a couple of weeks ago.

Secondhand bags also found a strong demand. Supliers were reported short of requirements and prices held at ceilings. Information also indicated that demand for white wipers was better. Colored rags were said not to be moving any too well and country mixed rags were quoted unchanged. Ceiling prices were reported maintained for roofing rags.

Atlantic Carton Corp. Buys Pairpoint Board Mill

NORWICH, Conn. — Atlantic Carton Corp. has purchased the board mill of the National Pairpoint Co. located at New Bedford, Mass. Acquisition of the Pairpoint mill places Atlantic in the front ranks of the integrated manufacturers in their industry.

The Pairpoint mill is equipped with three board machines—60, 64, and 94 inches and at present has a daily capacity of seventy-five tons. Extensive alterations and improvements will be made which will increase the daily output to 180 tons. Frederick L. Smith, pulp and paper mill engineer, of New York City, has been engaged to take charge of these changes.

It is understood that purchase of the mill, installation of new equipment and other improvements to be made will involve an expenditure of $1,750,000.

Kimberly-Clark Opens Quonset Cafeteria

NEENAH, Wis.—The cafeteria in the quonset hut project adjoining the Kimberly-Clark Corporation's Kimlark plant, which now house the engineering department of the firm, opened last week. All necessary equipment has been provided and there are counters for the cafeteria type of service. Two quonsets have been put together to form the large area to house the cafeteria kitchen, counter and service equipment. Seventy-five persons can be accommodated in the hut at one time.

Dispute Stops Work At Oxford Paper

RUMFORD, Me. — A work stoppage last week by 2200 of the Oxford Paper Co.'s 2300 employes, described by union and company officials as unauthorized, crippled production. Irving Deroche, representative of the United Mine Workers' Union, with which the employes are affiliated, declined comment other than to label the walkout as without union sanction.

The stoppage was precipitated, Theodore Spear, plant manager said, by refusal of a cutter room employee to take a two weeks' layoff, a disciplinary measure, for failure to perform work given her. She said she could not do the work.

A sympathy walkout in the cutter room spread to other departments during the day shift and night shift workers reporting at 3 p.m. joined the movement.

All but 100 maintenance employes are involved in the walkout. Union officials have urged the workers to return to their jobs.

Bud Marsh Returns and Joins General Paper Corp.

CINCINNATI, Ohio — Charles (Bud) Marsh, widely known in paper circles in this area, and a former affiliate of the Whitaker Paper Company of this city, has joined the sales staff of the General Paper Corporation, 7 W. Front St., Frank C. Martey, president of General Paper, announced this week.

Marsh recently was discharged from the United States Army after serving for more than three years as chief of the printing and lithographing division for the entire European Theatre of Operations. He held the rank of colonel at the time of his discharge.

General Paper was incorporated here last year. The company at present is contemplating a wide expansion program, which is to include the establishment of branches in Detroit, Chicago, and Dayton, Ohio, it was explained. General Paper recently acquired the interests of the Imperial Paper Co., 2351 Ferguson Road.

American Paper Goods Plant Opens for New Line

CHICAGO — The next week is expected to feature the opening of a new factory for the American Paper Goods Company, where the new division for the making of round cups for water and beverages will be ready for production. The plant, located at 4711 Foster Avenue and representing around 180,000 square feet of space, will also contain the Flexible Packaging Division where cellophane and glassine paper products and a specially designed line of transparent and opaque bags and envelopes will be manufactured. C. O. Edgerly, a veteran of the company, is now manager of the western division.

Professional Group Hears Dr. Gardner

CHICAGO — The Professional Paper Group wound up the year's monthly programs with a "bang" on Monday evening last week, when a fine audience of members and guests heard Dr. Burleigh B. Gardner, assistant professor of industrial relations of the University of Chicago, in his discussion of "Problems of Cooperation in the Industry." Dr. Gardner, well versed in labor matters following years of on-the-spot study of employer-employee relations in both large and small manufacturing plants, gave an inspiring insight into the "why" of labor troubles, debunked several philosophies concerning labor relations and indicated that an understanding of the other fellow's emotions and human qualities were an essential in future deevlopment of the country and its labor relations problems.

Those present indicated the talk was one of the finest of the year and the question period following clearly showed the importance the Group attached to his statements. Dr. Gardner stressed the fact that labor difficulties were looming up prominently if management at all levels did not attempt to determine what labor is thinking about, what it expects in the years ahead. He stressed the necessity of getting people to cooperate, cited many examples of conditions which made it impossible for cooperation to ever even be expected, and outlined the problems existing at all different levels of operation-management, supervisors, assistant supervisors and working groups at various levels.

Fire Wipes Out Plant In Putney, Vt.

PUTNEY, Vt. — Fire destroyed the three-story building of the Putney Paper company and the Greenview Tissue company here yesterday at 3:30 a.m. The damage was estimated at $100,000 by the owner, Wojciech Kazmierczak. Fire broke out under the dryer of a paper machine, employes on duty said, and flashed over the room in a matter of seconds.

Flames which burned out the front of the mill scorched buildings across the street and the fire department concentrated on saving these structures.

Ruben Returns to Livingston-Southard

Livingston & Southard, Inc., New York City, has appointed Robert J. Ruben as manager of the paper department. Mr. Ruben was with Livingston & Southard, Inc., until 1942 when he resigned to take a position with the Foreign Economic Administration, Washington, D. C. After leaving the F.E.A., he was associated with Green-Kriegsman Paper Co., Inc., and then with Marquardt & Co., Inc.

Patchogue—Plymouth Buys Ashuelot Mill

HINSDALE, N. H.—Officials of the Ashuelot Paper Company today announced transfer of the ownership to the Patchogue-Plymouth Mills Corporation of New York City. Harold S. Garfield, who has been associated with the firm for the past 36 years, and for 30 as treasurer and manager, has sold his entire interest in the company. He has no definite plans. His son, Russell, a major in the army during World War II, and Edward D. Plantier, a World War I veteran, will serve as co-managers. Samuel Colson will continue as superintendent.

The company, which manufactures high-grade tissue, will continue the same line. The New York firm, identified with the curtain trade, has plants in various parts of the country. The local plant was founded in 1904 with one machine and employing 15 persons. The former owners were the late Harry H. Russell and Frederick S. Leonard, both of Hinsdale; Frederick W. Childs of Brattleboro, Vt., and William A. Cole of Putney, Vt. The second machine was installed in 1911 and the present 55 employes include several women. The mill is near the site of the old Eames and Towne grist mill.

Russell Garfield recently was discharged from the army. He is a graduate of Dartmouth college and was associated with the paper company here for a short time before he entered service. Plantier has been with the company since 1917, and spent a year and a half with the navy in the first World War.

Scott Names Sears to Wax-Rite Plant Post

PHILADELPHIA — Roderick Sears, who recently returned to the Production Division of Scott Paper Company after four years in the Army, will be superintendent of the Cut-Rite wax paper plant, at Hoboken, N .J.

Jennings H. Blackiston, of 1511 Walnut street, Chester, has been promoted to be supervisor of roll stacking and sanitation at the company's Chester plant. He joined the company in 1933.

Stewart Farquhar, of 209 Willow Road, Chester, has been promoted to be master mechanic of the Fort Edward, N. Y., plant of the company. He has been supervisor of the mechanics for pulp preparation at the Chester plant. Joseph Armstrong has been advanced to Farquhar's former post at the Chester plant.

Marathon Staff To Picnic

MENASHA, Wis. — Marathon Corporation employes and their families will hold their annual picnic July 27, George Wilfling, general chairman, announced last week. The picnic, at Smith Park, will be the first since 1941, when the company suspended them because of the war.

GEORGE HARDISTY
Heads Mando Commercial Research

Mando Sets Up Department For Commercial Research

MINNEAPOLIS—A new division of the Research Department of the Minnesota and Ontario Paper Company, to be known as the "commercial research department," will open up a new field, not only new to Mando but relatively new to industry in general. George Hardisty, for several years assistant treasurer of Mando, has been appointed manager of commercial research, with headquarters in Minneapolis. Edgar A. Lauring also has returned to the research department, following two years' service in the armed forces. Mr. Lauring will be located at Mando's research laboratory at International Falls.

Rising Raises Scale; Extends Vacation List

HOUSATONIC, Mass.—More than 200 hourly paid employes of the Rising Paper company received notices last week that effective immediately the hourly wage scale will be increased 8½ cents. As the vacation plan has also been revised, this will give the hourly paid workers additional time. The general vacation plan gives workers a 48-hour week vacation with pay. For workers of five years or more, an additional service vacation of a 40-hour week has prevailed. The service vacation has been extended to a 48-hour week, providing those on the plan with two 48-hour week vacations, or eight hours more than heretofore.

Don Richardson Back in Trade

BOSTON — Donald Richardson, who was a Lieutenant-Colonel in the Army, has been released and returned to Storrs & Bement Company, is now calling on his old accounts in Boston and vicinity as sales representative. He went into the Army in July, 1942.

Thilmany Plans for New Paper Machine

KAUKAUNA, Wis. — Thilmany Pulp and Paper Company is planning changes in the operation of its paper machines, according to Charles R. Seaborne, vice president. The company will build an addition to its No. 8 machine room to house a new paper machine which will almost duplicate the No. 8 machine. This is the first step toward retiring the No. 5 machine.

The new equipment will have predryers the same as No. 8, but of 60-inches diameter. It will be turbine-driven, with a modern drive placed on the floor. This machine is expected to be in operation in the summer of 1947, Mr. Seaborne said.

The new machine is designed to run at a top speed of 1,000 feet. No. 8 and the new No. 10 machines will have a common room, with only a row of columns between. A full basement will be provided to house pumps, felt section and breaker beater.

The No. 8 machine has been altered and repaired recently at an expense of $45,000. Old machines, running the same type of stock, could produce paper only two-thirds as wide and one-half as fast as No. 8 is now manufacturing.

The new No. 9 machine has replaced No. 3 and No. 4 machines. No. 3 has been sold to a paper mill in Ohio and No. 4 is now in Santos, Brazil.

Tomahawk Closes Its Chicago Office

CHICAGO — Purchase of the Tomahawk Kraft Paper Company mills by the National Container Corporation of New York City has resulted in the closing of the Tomahawk Chicago office, according to reports in Chicago this week. Both sales representatives of the Tomahawk organization, Archie Hepburn and Joe Cowhill, widely known in the industry, resigned effective June 15. They have not as yet indicated their plans for resumption of activity in the paper industry. The same report states that the general management of the Tomahawk mill will remain the same, the only personnel changes resulting from the closing of the Chicago outlet of the company.

Michigan Superintendents Will Golf at Otwellegan

OTSEGO, Mich.—The Michigan Division of the American Pulp and Paper Mill Superintendents Association will hold their annual summer golf party Thursday, July 18, 1946, at the Otwellegan Country Club, which is located midway between Otsego and Allegan, on highway M-89. The golf tournament will start at 1:00 p. m. and dinner will be served at 7:00 p. m. Golf prizes wil be awarded after dinner. There also will be other games to play for those who are not golfers.

Congress Awards Contracts

(Continued from page 7)

No. 107, Howard Paper Mills, Inc., 14.23 cents and 14.73 cents.

No. 108, Howard Paper Mills, Inc., 14.23 cents and 14.73 cents.

No. 109, Howard Paper Mills, Inc., 13.23 cents and 13.73 cents.

No. 112, Howard Paper Mills, Inc., 19.03 cents.

No. 113, Howard Paper Mills, Inc., 14.93 cents and 15.47 cents.

No. 114, Howard Paper Mills, Inc., 14.47 cents.

No. 128, Barton, Duer & Koch Paper Co., 28.00 cents.

No. 150, Eastern Corp., 10.23 cents.

No. 153, Eastern Corp., 10.23 cents.

No. 154, Howard Paper Mills, Inc., 14.73 cents.

No. 155, Howard Paper Mills, Inc., 14.73 cents.

No. 156, Howard Paper Mills, Inc., 14.73 cents.

No. 157, Howard Paper Mills, Inc., 15.43 cents.

No. 158, Howard Paper Mills, Inc., 15.43 cents.

No. 189, Barton, Duer & Koch Paper Co., 16.00 cents.

No. 196, Barton, Duer & Koch Paper Co., 27.25 cents (100,000 pounds).

No. 203, R. P. Andrews Paper Co., 9.24 cents (5,000 pounds of a color); 9.03 cents (10,000 pounds of a color).

No. 206, R. P. Andrews Paper Co., 14.88 cents.

No. 255, Whitaker Paper Co., 9.07 cents.

No. 265, Mudge Paper Co., 9.23 cents.

No. 280, Mudge Paper Co., 11.75 cents.

No. 310, Paper Corp. of U. S., 10.00 cents.

No. 325, R. P. Andrews Paper Co., 6.17 cents (500,000 pounds); Whitaker Paper Co., 6.22 cents (875,000 pounds).

No. 326, R. P. Andrews Paper Co., 6.17 cents (500,000 pounds); Whitaker Paper Co., 6.22 cents (875,000 pounds).

No. 327, R. P. Andrews Paper Co., 6.17 cents (500,000 pounds); Whitaker Paper Co., 6.22 cents (875,000 pounds).

No. 368, Consolidated Paper Co., 6.621 cents.

No. 369, Mead Sales Co., 4.775 cents (.050 thickness); 4.40 cents (.060 and up thickness).

Chemical Starts Work On New Boiler Plant

HOLYOKE, Mass. — Work will be started shortly by the P. J. Kennedy Company on the foundations for the new boiler plant at the Chemical Paper Manufacturing Co. This will be a twin installation to the plant put in a year ago. The combined power of the two identical units will be sufficient to generate 120,000 pounds of steam an hour. The capacity of the old boiler house was but 66,000 pounds of steam per hour.

The Combustion Engineering Co., is building the boiler for the Chemical installation. The new plant will be ready by mid-September.

Chicago SAPEYES Plan Open Meet

CHICAGO—The western division of the Salesmens Association of the Paper Industry will hold its next open meeting on Monday, July 15, at the Hotel Sherman. Members and guests are being urged to make a special effort to attend the meeting and to view an excellent moving picture, "Paper, Pacemaker of Progress," which was shown at the New York annual meeting of the SAPEYES and which drew much favorable comment.

It is reported that the Association will have the first of its outings a week later at the Park Ridge Country Club. Norman Beardsley of the Crossett Paper Company was a guest of the SAPEYES western division at the regular meeting on Monday noon, June 17, when the program was given over to a round table discussion of the business outlook. At the same meeting Phil Howard, publisher of the American Paper Merchant, gave an entertaining and instructive report of the program of the Paper and Twine Club which attracted a number of Chicago paper trade executives to Lake Wawasee, Indiana, last week. Mr. Howard's graphic report was thoroughly enjoyed by those in attendance.

Great Lakes Shareholders Hear of Rise in Profit

TORONTO — Shareholders of Great Lakes Paper Company were told that the net profit for the first four months of the current year was roughly $280,000 or practically double the ratio of the previous eight months, by the Hon. W. Earl Rowe, president, at the special meeting held last week which approved the plan of reorganization. Common shareholders can reasonably anticipate dividends in the not-too-distant future, he said.

Converting the first four months' profit figure to an annual basis would indicate a net profit of around $840,000 for 1946. This would mean earnings of $3.85 a class A share and $1.35 a common share. But certain factors suggest this may be bettered.

The current month and the quarter ending June 30 will establish new records surpassing the month of May and the quarter ending March 31, 1946, which had been at new peaks, it is stated. The supply of wood pulp is said to be highly satisfactory and operation of the mill at 100 percent capacity both for newsprint and for sulphite is said to be assured, barring unforeseen events. The year is expected to show the best results in the company's history.

Refunding of the outstanding 5 percent bonds with a new 3½ percent serial issue in the United States is almost consummated, it is stated. This would mean a reduction of over $60,000 a year in interest requirements.

Iowa Will Consider Fiber Board Control

DUBUQUE—Of more than common interest to the pulp and paper industry is the news that fiberboards on the walls and ceilings of the Canfield Hotel are held to have caused the flash nature of the tragic fire. The report with this finding was made by John Strohm, state fire marshall of Iowa, following an investigation of all causes.

On the basis of the report the Iowa fire marshal, it is said, will recommend to the next session of the Iowa legislature that the use of fiberboard in places of public assembly be investigated thoroughly and that penalties be waived in favor of a law giving the marshal the right to close up establishments not observing certain recommendations which, at this writing, bid fair to include specific statements concerning the future use of fiberboard in building construction.

Mr. Strohm, said the report, indicated that the flames swept through the lounge and lobby and went up the stairway lined with fiberboard which burned while the wood railing on the other side of the stairs did not. The fiberboard was installed in the hotel seven years ago.

Thomas Takes $151.50 for Prize-Winning Ideas

LEE, Mass. — William Thomas was awarded $151.50 this month under the Smith Paper Inc. paid suggestion system for two ideas. His first suggestion, for which he won $96.50, was on handling trim on the Langston winder, and the second, for which he won $55 was for an improved carrying roll.

Edward J. Driscoll was awarded $22 for two suggestions. He received $17 for a plan for storing conduit pipes and $5 for one on storing beater bars and Jordan fills. Other winners were: John H. Keenan, $15, hardened arbors; Fiore Longerato, $6, stock accumulation in stuff box; Albert Shannon, $2, washing centrifiners.

Randall Kean Explains Plant Safety Program

SPRINGFIELD, Mass. — Paper mill foremen from the Strathmore mills in West Springfield and Woronoco gathered at Strathmore Inn, Woronoco, last night, to hear Randall Kean, well-known safety engineer from Worcester. Kean gave the group the benefit of his 15 years of experience in this field on the subject of "The foreman's place in safety."

The West Springfield mills are currently initiating a new safety program along the lines presented by Kean in his speech and the Woronoco mills have received numerous commendations on their safety record of the past years.

DIRECT FEEDING OF HYDROGEN PEROXIDE

In Accordance with BECCO Methods... Has Many Advantages:

It guarantees uniform addition of chemicals at all times and, therefore, best results.

It eliminates the use of mixing tanks and weighing and handling of chemicals; it requires very little floor space for handling and preparing.

It eliminates spillage and wastage of chemicals.

It simplifies control of the bleaching process.

There are many advantages to be gained by bleaching groundwood pulp with BECCO HYDROGEN PEROXIDE bleaching methods. Why not investigate them?

BECCO's engineers and chemists are experts in the bleaching of groundwood pulp. For details write to:

BECCO SALES CORPORATION

AGENTS FOR BUFFALO ELECTRO-CHEMICAL CO., INC.

18 Sawyer Avenue, Buffalo 7, N. Y.

New York Boston Philadelphia Chicago Charlotte

See Market Trends Favoring Abitibi

TORONTO, Ont. — The statement of Abitibi Power & Paper Company, recently printed in these columns, suggests that even a slight increase in sales may have a considerable effect on profits and with the demand for paper continuing high and Abitibi's inventory of pulpwood up 54.5 percent (above the amount required for capacity operation), increased sales in the current year are definitely indicated. Even more significantt han the actual results shown in the recently published figures for 1945 are the indications for 1946.

Publication of the final report of the receiver and general manager reveals new reasons for the movement of the company's new securities to present levels, states the Financial Post. With dollar sales up only 9 percent and operating income up 6 percent, the profit after all charges was up 76.4 percent to $1,841,040.

A continuation of the reduction in depreciation charge, which started two years ago, would benefit earnings considerably. From $4.5 millions a year for 1940-43, inclusive, it was cut to $3,750,000 in 1945.

With working capital of $26,894,657 at December 31, 1945, and probably higher now, redemption of a block of the new bonds would seem likely with lower interest charges the result. (Working capital above $17.5 millions may be used for this purpose). Some analysts are calling the whole issue to be refunded before the end of the present year.

Analyzing the 1945 results in relation to the new reorganized capital structure indicates:

Bond interest requirements of $2,946,700 (including 11 percent for U. S. exchange) covered 2.18 times (1.88 times in 1944).

Earnings on the new $2.50 preferred—$34.29 a share $26.96).

Earnings on the new $1.58 preferred —$1.14 a share ($0.87)—but still falling $498,466 short of meeting the full requirement.

No earnings for the new common—deficit 40c. (d. 71c).

One market anomaly pointed out by analysts is that either Abitibi's $1.50 preferred should be bought or the common sold. With the common selling around $22 a share, analysts see little justification for the $1.50 preferred staying about $19½, when it ranks ahead of the common for dividends, is callable at $25 a share and would yield 7.7 percent on the basis of the full $1.50 dividend. This dividend is not cumulative until January 1, 1947, or until the 5 percent bonds due 1965 have been reduced to or below $35 millions, whichever is the earlier.

New wood grinding machinery, to cost more than $1,500,000, will be installed in the Thunder Bay Paper Company, Ltd., Port Arthur, Ont., a subsidiary of Abitibi.

Company officials said the new equipment, which will be entirely Canadian-made, is the most modern of its type in the world and will materially increase the efficiency of the plant. The company also plans the remodelling of all wood handling equipment.

"Work will start late this summer on the installations, marking the first of a series of modernization and expansion plans which Abitibi Power and Paper Co., Ltd., have had under consideration since their re-organization in April of this year," the announcement said.

Syndicate Offers Marathon Shares

WAUSAU, Wis. — An underwriters' syndicate, including 73 well-known firms, has acquired Marathon Corporation's latest issue of 420,000 shares of common stock, which was offered for sale June 19. They are offering the stock, which has a quoted par of $6.25 per share, to the public at $37 a share. Included in the group are the Lee Higginson Corporation of Chicago; Kuhn-Loeb; Lehman Brothers; Merrill, Lynch, Pierce, Fenner & Beane; and Paine, Webber, Jackson & Curtis, all of New York, and the Wisconsin Company and Loewi & Company, both of Milwaukee.

The proceeds of about $15,500,000, according to the prospectus, will be used to pay up the corporation's present funded debt and to complete construction of the corporation's Canadian pulp mill, which is expected to go into operation in August, and for improvements and additions to the corporation's plants in Wausau, Rothschild, Menasha, Ashland, Wis., and Menominee, Mich.

It was said that about $10,100,000 will be used to retire the debentures which are due in 1959, about $1,650,000 is earmarked for the mill in Canada, another $1,650,000 will be used to complete the building project at Menasha, and the remainder, more than $1,750,000, will be used for equipment at the plants at Menasha and at Menominee.

The sale June 19 followed approval by the common stockholders at a special meeting February 21 of a proposal to increase the corporation's number of shares from 400,000 to 1,300,000 and of a 2-for-1 splitup of the common stock.

FINANCIAL RECORD OF THE WEEK

New York Stock Exchange

High, Low and Last for Week Ending June 22, 1946

STOCKS

	High	Low	Last
A. P. W.	9	8⅜	9
Armstrong Cork Co.	62¾	57	58
Celotex Corp.	35⅝	33⅜	33½
Celotex Corp., pf.	22¼	21⅜	21½
Certain-Teed Products Corp.	25½	21⅞	23¾
Certain-Teed Products Corp., pf.	....	....	....
Champion Paper & Fibre Co.	63	57½	57½
Champion Paper & Fibre Co., pf.	111¼	110½	110½
Congoleum Nairn Co.	39	35½	36
Container Corp. of America	53½	49¼	50½
Continental-Diamond Fibre Co.	15⅞	14⅝	15
Crown-Zellerbach Co.	37⅜	33¼	33⅞
Crown-Zellerbach Co., pf.	108¼	108	108¼
Dixie Cup Co.	49⅝	47	47
Dixie Cup Co.-A	61	58	58
Flintkote Co.	45¾	40	41⅝
Flintkote Co., pf.	....	....	....
Robert Gair	11⅛	10	10½
Robert Gair, pf.	20⅞	20¾	20⅞
International Paper Co.	48½	45	46½
International Paper Co., pf.	120¾	114¾	115½
Johns-Manville Corp.	157	146	150
Johns-Manville Corp., pf.	140¼	140¼	140¼
Kimberly-Clark Corp.	68¾	65	65
Mac Andrews & Forbes	42	41⅜	41⅜
Mac Andrews & Forbes, pf.	160	160	160
Masonite Corp.	69½	65½	65½
Mead Corp.	26¼	24	24⅜
Mead Corp., pf. A-6%	106	105¾	105¾
Mead Corp., pf. B-5½%	106	105½	106
National Container Corp.	35½	33¼	33¾
Paraffine Companies, Inc.	88	83¼	83¼
Paraffine Companies, Inc., pf.	....	....	....
Rayonier, Inc.	30⅛	27⅛	27¼
Rayonier, Inc., pf.	38¾	37½	37⅞
Ruberoid Co.	58	52¾	52¾
Scott Paper Co.	59	56¾	57
Scott Paper Co., pf.	109¼	109¼	109¼
Sutherland Paper Co.	46¼	43¾	43¾
Union Bag & Paper Corp.	37¼	32	33½
United Paper Board Co.	13¾	12¾	13¼
U. S. Gypsum Co.	130	125	126
U. S. Gypsum Co., pf.	203	203	203
West Virginia Pulp & Paper Co.	52¾	46½	46½
West Virginia Pulp & Paper Co., pf.	114	114	114

BONDS

Abitibi Pulp & Paper Co. 5s '53	112	112	112
Celotex Corp. 3¾s '55	....	....	....
Certain-Teed Products Corp. 5½s '53	....	....	....
Champion Paper & Fibre Co. 3s '65	....	....	....
International Paper Co. 5s '47	101¼	101¼	101¼
Mead Corp. 3½s '53	....	....	....

New York Curb Exchange

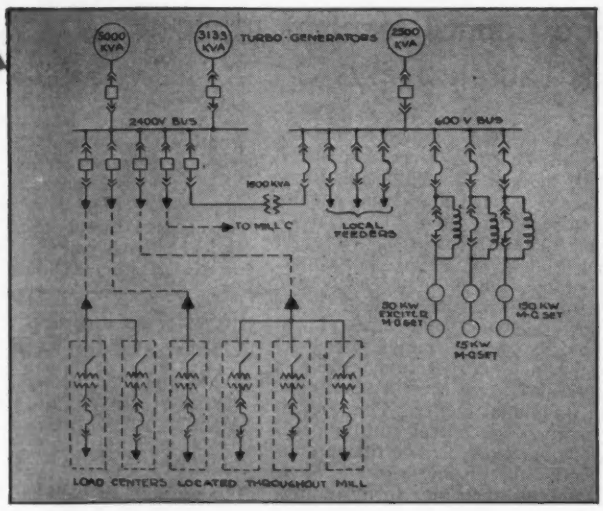
High, Low and Last for Week Ending June 22, 1946

STOCKS

	High	Low	Last
Great Northern Paper Co.	41½	40½	41
Hummel-Ross Fibre Corp.	19¼	17½	17½
St. Regis Paper Co.	14⅜	13¾	14⅜
St. Regis Paper Co., pf.	....	....	....
Taggart Corp.	10¾	10⅝	10⅝

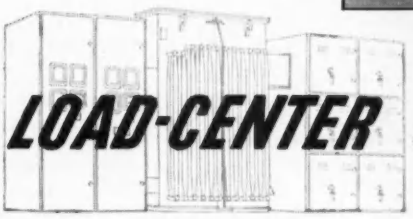
BONDS

American Writing Paper Co. 6s '61	102⅜	102⅜	102⅜



Switchgear and Load-center Unit Substations are Shown in this One-line Diagram.

Originally, the 5000-kva generator was wound for 600 volts, and all but one circuit (to mill C) was powered from the 600-volt bus. The change to 2400-volt distribution brings short-circuit amperes to a value consistent with moderate-sized circuit breakers.



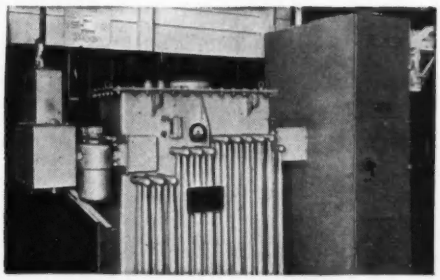
...BY G-E LOAD-CENTER UNIT SUBSTATIONS

● An old, inadequate plant power system was an open invitation to trouble at this mill. Electrical outages were delaying production. Circuits and switchgear which had been added piecemeal added to the danger of inadequate interrupting capacity. In spite of large secondary feeders, the distribution of 10,000 kva at 600 volts had created unsatisfactory voltage conditions.

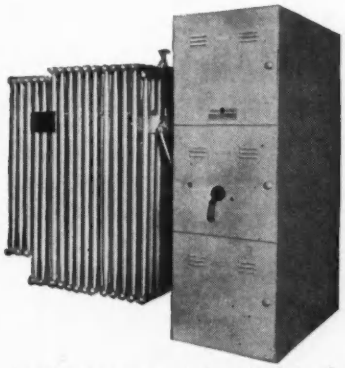
Analysis showed that further patchwork would be a costly practice. A new power distribution system, based on the use of G-E unit substations, was planned with the help of G-E engineers.

Now primary distribution is made at 2400 volts over cable that keeps voltage drop down, though it's modest in size. The powerhouse switchgear is all G-E metal-clad, equipped with magne-blast oil-less air circuit breakers. At load-center locations throughout the plant, six unit substations are installed, to step down from 2400 volts to 600. Individual circuits are fully protected by convenient metal-enclosed drawout air circuit breakers that are an integral part of the unit substation.

This new protection against outages and obsolescence is already justifying itself in power continuity and lowered costs. Why not determine, without obligation, if power-system replacement could do as much for you? Just call your local G-E representative. *Apparatus Dept., General Electric Company, Schenectady 5, N. Y.*



Typical load-center unit substation, as installed at locations which permit short low-voltage feeders to points of power use.



Another load-center unit installed in the mill, stepping 500-kva down from 2400 volts to 600. Draw-out air circuit breakers are co-ordinated with substation size to give full short-circuit protection without excess breaker size. Substation transformers use Pyranol non-inflammable insulating liquid.

LOAD-CENTER POWER DISTRIBUTION UNITS

Wood Council Meet Elects Lauren Seely

SHELBURNE, N. H.—The main topic of discussion at the quarterly meeting of the Northeastern Wood Utilization Council, held at the Philbrook Farm Inn, was organized marketing and integrated logging.

Edgar L. Heermance reported on the first year's operation of Connwood, Incorporated, the statewide marketing cooperative formed in Connecticut for handling pulpwood and other forest products. By pooling many timber holdings, the new corporation has been able to secure large contracts not open to the individual owner. This puts it in a position to control cutting practice. The sponsors believe that organized marketing on the right lines is more effective than any form or government regulation. A broad market for forest products and mechanized harvesting are opening the way for integrated logging, where all the trees that should be cut under good forestry practice are taken out in one operation, skidded tree-length to the roadside, and there cut into sawlogs, pulpwood, or whatever the material and the market call for.

Before the meeting, the members were shown through the pulp mill of the Brown Company, and others visited the company's woods operations. Officers elected for the coming year were Lauren E. Seeley, Durhan, N. H., president; L. W. Rathbun, Concord, N. H., vice president; Edgar L. Heermance, New Haven, Conn., secretary-treasurer; executive committee: D. N. Howes, Northfield, Vt., and Daniel Smiley, Jr., Mohonk Lake, New York. The Council is made up of foresters and research men in New England and New York who are interested in developing new uses for low-grade wood and wood waste. It employs a field staff and publishes frequent bulletins. The next meeting, at Syracuse, N. Y., on October 2, will include an invitation conference on new developments in hardwood pulp.

Roos Presents Dark Picture To Packaging Institute

CHICAGO—A pessimistic view of the paper outlook for the next two years was sketched last week by Charles F. Roos, president of the Economic Institute of New York City. Speaking on June 13 at a meeting of the Flexible Packing Industry in the Drake Hotel, Mr. Roos said that because of delays in obtaining new machinery for enlarging their mills, the country's paper producers probably will be unable to meet the increased demand for paper until 1948. "No significant increase from the current levels of paper production may be expected in the remaining six months of 1946," said the economics expert who is advisor for a large number of nationally known concerns in varied lines of endeavor. Production in March and subsequent months has been at capacity levels but no increase in capacity is in prospect in the short run because of the current tight situation in the capital goods industries. Mr. Roos spoke on a program which pointed out to the paper packing industry many of the genuinely important problems to be solved before the trade could begin to meet the huge demand caused by technological improvements and expanded usages for the products they sell.

Forest Fire Fighters Confer at Tomahawk

TOMAHAWK, Wis.—About 90 officials of forest fire fighting organizations from 17 central, eastern and southern states and the District of Columbia attended a conference here June 13 on forest protection and a demonstration of equipment used to fight fires in Minnesota and Wisconsin.

The conservation officials had spent three days at the Higgins' Lake Training School for Forest Fire Fighters run by the Michigan Conservation Commission in the Upper Peninsula. The Wisconsin and Minnesota Conservation Departments were hosts to the group at the three-day session.

Representatives attended from Wisconsin, Michigan, Minnesota, Iowa, Illinois, Indiana, Ohio, New York, New Jersey, Pennsylvania, Maryland, District of Columbia, Missouri, Arkansas, Oklahoma, Texas, Louisiana and Georgia.

Weiser Explains Labor Plan of National Blank Book

HOLYOKE, Mass. — Richard M. Weiser, superintendent of the National Blank Book Company, spoke at a panel discussion on "Management's opportunity to secure greater production through better labor relations," at a recent meeting of the New England Council at Whitefield, N. H.

Weiser told of the development of the incentive wage program at National Blank Book with its 1000 employes.

It is based on collective bargaining. A profound study has been made on the whole issue of job evaluation. Studies have been made for the establishment of piece rates with the result that those who don't like them when they don't understand them, do like them when they get to understand them because they are based on fairness.

Hyman Opens as Consultant

BOSTON—Frank W. Hyman has sold his entire interest in the Rotogravure Engineering company, to the Miller Printing Machine Company, and has resigned as its president, treasurer, and director. Mr. Hyman will act as rotogravure consultant to those interested in coating, printing, and laminating.

Trees for Tomorrow Opens School Camp

EAGLE RIVER, Wis.—Located on a chain of 21 lakes near here, a forestry and conservation camp is being operated from June 14 to October 1 by Trees for Tomorrow, Inc., in cooperation with the U. S. Forest Service. The facilities of this former training school for foresters will provide headquarters in Northern Wisconsin, where groups, foresters and technicians of public and private agencies can meet in the interest of forwarding conservation and forestry.

Eighty foresters from the eastern seaboard, the south and midwest were expected at the opening of the institute on June 14. They will hold forest fighting equipment demonstrations and go on field trips. Beginning June 17, a regular six-week summer session is being held in field science. It is sponsored by teachers' colleges in the state. A cross-section of citizens have booked reservations for the remainder of the first year.

County agents in the Wisconsin Valley will select 4-H club boys who have done outstanding work in forestry to attend a special award period as guests of Trees for Tomorrow. Another 4-H club group will include both boys and girls.

The Milwaukee Conservation Alliance, Wisconsin Valley and state educators, the Milwaukee Nature Club, conservation wardens and the Wisconsin and Upper Michigan division of the American Society of Foresters have scheduled periods.

Lectures will be held in the administration building, field sciences will be studied in a laboratory and guests will be housed in modern dormitories. Meals will be served in the dining hall overlooking the Eagle River. The camp staff, including the steward, cooks and assistants, as well as a crew from the U. S. Forest Service Ranger station, have been putting the camp into shape.

Twin City Council Names Bentzen as Safety Head

MENASHA, Wis.—Fred Bentzen of Kimberly-Clark Corporation has been chosen chairman of the Twin City Safety Council, it was announced at a meeting Tuesday evening, June 12. He succeeds Howard Aderhold of Marathon Corporation. H. L. Sherman, director of the Menasha Vocational School, will be secretary-treasurer, succeeding Carl Christensen, director of the Neenah Vocational School.

The program at the safety meeting for foremen and supervisors at Hotel Menasha was the last one of a series. It dealt with the correct way and the incorrect way of conducting safety committee meetings.

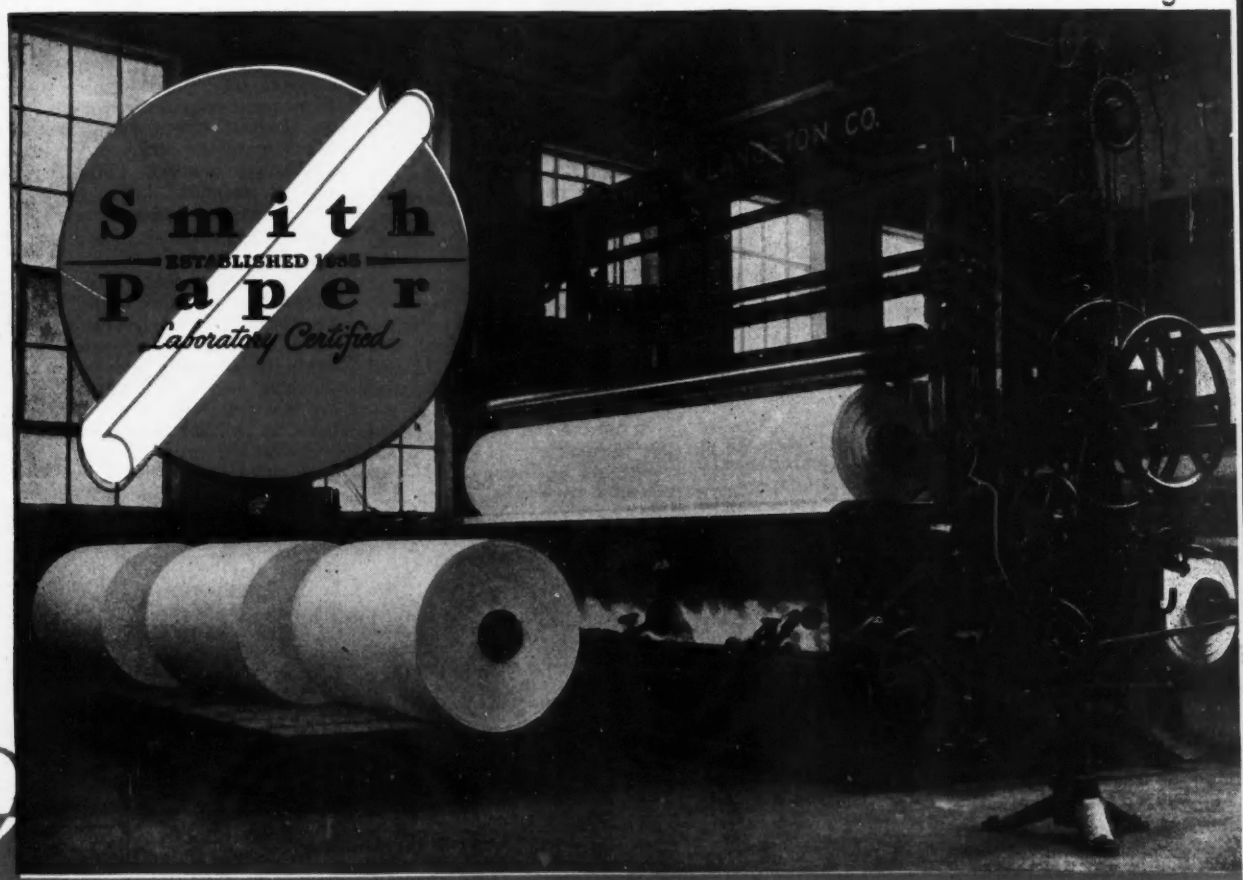
The new officers were elected at a recent meeting of the executive committee of the safety council.

Flint and steel have been associated in people's minds for a lot longer than any of us can remember. ***It has been a successful combination.***

So also is the team of Langston and Smith. Langston Slitters help Smith Paper, Inc., to turn out cigarette tissue of the very finest quality. There is no guesswork in that plant, thanks to Smith's 109 years of manufacturing experience, and the use of such dependable and efficient machinery as the Langston Slitter. For a true, clean cut, for rolls of uniform density from core to outside diameter, ***for unbeatable performance, high speed operation and low maintenance, specify Langston.***

SAMUEL M. LANGSTON COMPANY

CAMDEN, NEW JERSEY



Langston

SLITTERS AND ROLL WINDERS

Premium Payments For Gypsum Liner

WASHINGTON — The inter-agency steering committee on premium payments is working on the third in a series of incentive payment plans following a meeting here with the Industry Advisory Committee for gypsum board paper liner.

While no definite conclusions were reached a number of suggestions were received by the committee as a basis for a plan.

Paper liner has been termed the greatest limiting factor in production of gypsum board and lath, which are listed among the two or three most critically short building materials.

Premium payments, it is believed, will stimulate output of the paper liner. As earlier announced, any plan issued this month would be effective for the entire month.

National Housing Expediter Wilson W. Wyatt and Fred Glover, director of the Bureau of Reconversion Operations of CPA, spoke at the meeting, which was presided over by Stanley McGiveran of CPA.

Export Curbs Removed From Newsprint

WASHINGTON, D.C.—Standard newsprint will be removed July 1 from the list of commodities which require export licenses for shipment abroad, the Office of International Trade announced this week. While removal of the restrictions will make it unnecessary for exporters to apply for a license in order to ship newsprint overseas, the action is expected to make little difference in the amount available to United States publishers, OIT officials said.

Domestic controls were removed January 1, it was pointed out. OIT has had authority to issue export licenses for any amount since that time. However, only small quantities have been exported, since most domestic producers have long-term contracts with publishers. In the first three months of this year 12,941 short tons were exported. United States production during that period totaled 196,000 tons and imports amounted to about 950,000 tons.

Waldron Sues to Clear Patent Interference

NEW BRUNSWICK, N. J.—John Waldron Corporation, has brought suit in the United States Court for the District of Columbia against the District of Columbia Paper Mills, Inc., in order to obtain a ruling by the Court that the Waldron "Synchroset" paper machine coater will not infringe the Harrigan patents numbers 2,393,000, 2,393,691 and 2,393,529 as has been alleged by the District of Columbia Paper Mills, Inc.

According to B. R. Newcomb, president and general manager of the Waldron corporation, the District of Columbia Paper Mills, Inc., has endeavored to extend the Harrigan patents to cover advanced developments in paper machine coating originated by the John Waldron Corporation.

Imports for May's Last Week Near 8 Thousand Tons

WASHINGTON, D. C. — Imports of wood pulp into the United States from overseas totaled 7,928 short tons during the week ended May 29, 1946, the Forest Products Section, Office of Domestic Commerce, Department of Commerce, reported today.

The aggregate quantity of wood pulp imported from overseas sources from January 4 through May 29 amounts to 216,741 short tons. This tonnage was composed of about 34 percent unbleached sulphite wood pulp, about 54 percent unbleached sulphate wood pulp (kraft), and about 6 percent of bleached sulphite grades other than high alpha and dissolving. The remaining 6 percent was mechanical pulp, bleached sulphate, and special chemical grades of bleached sulphite.

Imports of wood pulp from Sweden totaled 185,099 short tons as against 31,642 tons from Finland. Of the total imports from overseas, 85 percent came from Sweden while 15 percent came from Finland.

New Zealand Production Continues at Maximum

WASHINGTON, D. C. — Pulp and paper mills in New Zealand continued their capacity output of wrapping paper, carton and box boards during 1945, according to a report to the Department of Commerce. Carton and cardboard box manufacture has been increased substantially to meet the demand for this type of container, due partly to the shortage of wood and tin plate for packing purposes. Demand for paper by the printing industry expanded, despite labor shortages, to meet the packaging and advertising requirements of manufacturers who are increasing production of civilian goods.

Standard Cap Places New Package on Market

CHICAGO—The Standard Cap & Seal Corporation has begun production of a new "flex-vac" package and the new product is now on the market. The air-tight package, made either as a transparent cellophane closure or an opaque paper container, is at present being made for a cheese manufacturer. The company also expects to enter the coffee packaging field within a short time. According to J. A. Keenan, president, the new packaging process is expected to find favor in the packaging of pork products, dehydrated soup mixes, dried fruits, dried whole milk and most frozen foods.

Dutch Paper Maker Visits Wisconsin

WISCONSIN RAPIDS, Wis.—Mynheer L. Hoest, manager of the Royal Dutch Paper Company, Maastricht, province of Limburg, Holland, visited the Consolidated Water Power and Paper Company last week as a member of a group of Dutch businessmen on an informal six-day tour of industries of the United States. He is president of the Board of Trade of Limburg.

Mr. Hoest, who explained that Maastricht was the first Dutch town liberated by the American troops, described the present situation in the Dutch papermaking industry. He said that during the last few years the mills have been working only about 20 to 25% of normal capacity. One very large paper mill was destroyed by German bombs and a few others were seriously damaged, he asserted. One rather large mill was practically destroyed by fire, which, according to the Germans, "just happened."

"Coal is our big difficulty at the moment," Mr. Hoest said. He pointed out that the province of Limburg, producer of all of Holland's coal, is at present mining only about 28,000 tons daily, while the yearly need is 13,000,000 tons.

Before the war, the mine workers were Czechs, Poles and Italians. During the war, the Germans forced a large number of these workers to work in German mines, and most of the other mine laborers were returned to their own countries. This has resulted in a tremendous labor scarcity, and the Dutch people have been forced to learn how to work the mines themselves.

"Another problem is the wood needed for the paper mills," Mr. Hoest continued. "Formerly our wood supply came from Russia, Sweden and Finland—all of which was cut off during the war years. But the Dutch people are working very hard to bring things back to normal and we are making considerable progress toward industrial rehabilitation."

"The situation as a whole is advancing very rapidly and, with full determination, the Dutch people are rebuilding in a hurry," he said. "The courage and sense of humor of the people has enabled them to come through a very difficult time."

He stressed the need of American help and looked hopefully toward the United Nations. He added that Holland is "pinched between the interests of Russia and England" and is forced to take an "on-the-fence" position.

Aktivin Sponsors Corpolin

Credit for the development and exhaustive testing of Corpolin which was described in these pages last week should be given to the Aktivin Corporation. An error in the print shop withheld the name of this company.

Saskatchewan Studies Sodium Sulphate Prospect

LAKE CHAPLIN, Sask. — While operation of a sodium sulphate processing plant will be carried out by the Saskatchewan government large scale development of the plant is contingent upon the findings of the engineering and economic survey, which has been carried on for about a year. This was disclosed recently by T. C. Douglas, Saskatchewan premier.

Sodium sulphate is used commercially in the refining of nickel and in the processing of pulp and paper, Mr. Douglas said. There was a potential market of from 60 to 100,000 tons per year and Saskatchewan had an almost complete natural monopoly. The only other North American source was Georgia, he said.

It was being mined now by the International Nickel Company and by a private operator, he said, but these firms were using the actual mining method. The government plan was the "saline deposit" method by which the water which collected in the lake in the spring was pumped off into separate earth reservoirs. The water evaporated and the sodium sulphate was deposited on the bottom of the reservoir and was collected from there. This method ensured getting a much more pure concentrate of the product.

Sodium sulphate was also produced as a by-product in the manufacture of nylon stockings, he said, but it was not expected there would be competition from this source as the mineral so produced went back into the manufacture.

Wisconsin Wire Adds Space

APPLETON, Wis. — Wisconsin Wire Works is planning to build a 50 by 98 foot concreted block addition to its plant here. Construction will begin immediately.

OBITUARY

J. Edward Randall

HOLYOKE, Mass. — J. Edward Randall, retired assistant treasurer of the Millers Falls Paper Co., died last week at his home after a short illness. Randall had been associated with the Millers Falls concern for 40 years. He joined the company in 1904 which was two years after its founding, and remained with the firm until his retirement in 1944.

Born in Chicopee, Randall came to Holyoke as a boy and was educated in the local schools. While with the Millers Falls Paper Co. he maintanied his residence in this city, staying at the Mansion House in Greenfield and the weekends at his home. He was a member of the Second Baptist church.

His survivors are one sister, Mrs. Robert S. Parish of Van Nuys, Calif., and nieces and nephews. His wife, the former Lillian Weston, died several years ago. Funeral services were held in Skinner Memorial chapel. Officiating was Rev. Daniel H. Miller. Burial was in Forestdale cemetery.

Nancy Kimberly Bergstrom

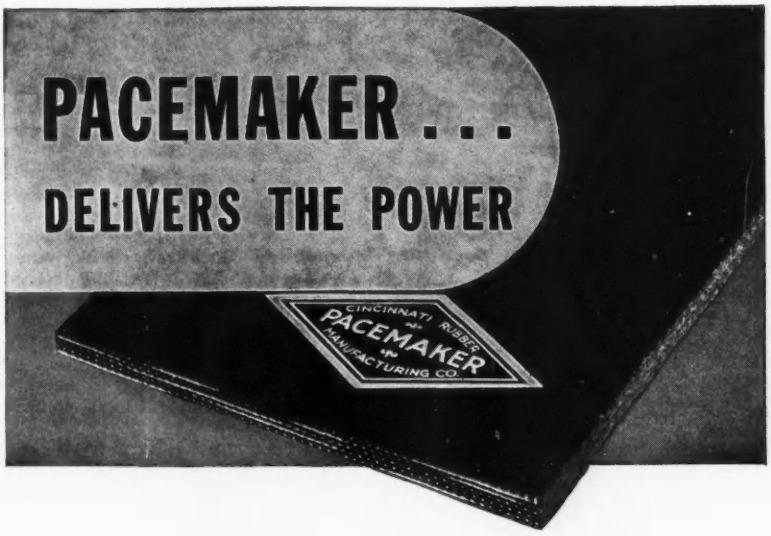
NEENAH, Wis.—Mrs. Nancy Kimberly Bergstrom died Saturday evening, June 15, at her home at Beverly Hills, Calif., after a prolonged illness. She was the daughter of the late Mr. and Mrs. John Alfred Kimberly, her father having been one of the founders of Kimberly-Clark Corporation. Funeral services were conducted June 19 at Forest Lawn cemetery at Los Angeles.

Clifford L. Peacock

ATLANTA, Ga.—Clifford L. Peacock, Sr., aged 55, a special representative for the S. P. Richards Paper Company, died unexpectedly June 14 at his home in Decatur. The deceased is survived by his widow, five daughters and five sons.

Wilbur Van Deraa

KIMBERLY, Wis. — Wilbur Van Deraa, 39, was fatally injured Saturday morning, June 22, when a bucket fell from a conveyor at the Kimberly mill of Kimberly-Clark corporation. With other workers, he had been straightening cables on the conveyor on the log haul in the wood room.



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RUBBER MANUFACTURING CO.
Cincinnati, Ohio

Burt Ashman Tells About Institute's War-Time Role

APPLETON, Wis. — The part played by the Institute of Paper Chemistry of this city and the industry in general in World War II has been summarized by Burt E. Ashman of the Institute staff. He points out that during the early months of the war, paper and paper products, with few exceptions, were considered relatively nonessential, and the industry, then lacking priority assistance, was faced with growing shortages of labor and raw materials.

By way of contrast in the concluding period of the war Mr. Ashman quotes Donald Nelson of the War Production Board as acknowledging that of the more than 700,000 articles necessary for the maintenance of troops overseas, 90% were packaged or protected by paper and that a substantial majority included paper as a component or integral part.

Referring to the formation of the War Products Development section of the Pulp and Paper division of the War Production Board, Mr. Ashman tells how, in September of 1942, John G. Strange, secretary-treasurer of the Institute, was called to Washington as chief of the section serving until the following May.

"Critical shortages of many materials were already manifest but pulp and paper stood out as one of the industries whose products seemed abundantly available. The versatility of cellulose generally, and of pulp and paper in particular, was being recognized. As time went on, the war demands for paper and paperboard became more and more significant and it gradually became apparent that, instead of a surplus supply, there was an impending deficit."

As a result, researches at the Institute grew rapidly. The reduction in chlorine for bleaching led to important services in supplying and standardizing the instruments for measuring brightness of paper. The Institute staff sought substitutes for critical materials. Some of the projects, Mr. Ashman says, involved studies relating to the hardening of wood to provide a substitute for teakwood used in battleships and other naval vessels, production of chemicals from wood tars, investigations of antiseptic materials for foods, textiles, papers, etc., conversion of industrial wastes into usable products, development of special clays, adhesives, and coatings for specialty war papers, fungicide and moldproofing investigations, development of special map papers, and many other emergency projects.

He refers to the "Paper House" near the main Institute buildings, which was developed for the Office of Production Research and Development to provide a temporary house which could meet all requirements. This was engineered and designed by the physics group of the Institute under direction of Dr. J. A. Van den Akker, and other Institute departments collaborated in the development of the material.

"Other projects for government agencies, some of which are still under way, related to tannin substitutes for quebracho, tall oil as a source for scarce fatty acids and rosin acids, a study of nonphenolic resins as they relate to paper-base plastics, development of a paper substitute for binder twine, a study of special cellulose esters for making mold and fungus resistant textiles, and the development of a paper paulin," Mr. Ashman states.

He also refers to the Institute's collaboration with other government agencies in problems relating to protection and packaging of many different types of supplies and materials for overseas and domestic shipment.

"An outgrowth of this work was the application of the sword hygrometer, an instrument for the rapid determination of moisture conditions of dehydrated foods. The testing of the flexibility of paper and other materials used in the packaging of food, and the investigation of food packaging at high temperatures and high humidities were undertaken."

Mr. Ashman also discusses the work in development of shipping containers. The "V-Box" met all tests—it was strong enough for all normal handling, it could be immersed in water for long periods, and stored in dumps under the most adverse conditions.

"The search for new fibrous raw materials was stepped up, economies in the pulping, refining, and manufacturing technics were required, and new coating agents, fillers, impregnating agents, adhesives, etc., had to be found. . . . Container board, especially treated to meet waterproofing specifications, had to be reused after it had fulfilled its original purpose. Textiles were being given new processing, and ultimately the trimmings from that industry were finding their way to the pulp and paper industry. . . .

"Serving on the Advisory Board of the Research and Development Branch, Military Planning division, of the Office of the Quartermaster General was Westbrook Steele, executive director of the Institute. He was also the executive officer of the Combined Pulp and Paper Committee of the Combined Production and Resources Board, WPB.

"The Institute's technical director, Dr. Otto Kress, spent three months in Europe just prior to V-E day on a mission for the army service forces."

Mr. Ashman also paid tribute to the Institute's students, graduates and alumni in the varied and important parts they played in winning the war.

Holyoke Mills Shut For Vacation Days

HOLYOKE, Mass. — Many Holyoke paper mills will be shut down the first week in July for vacation. A few will be closed for longer periods and still others are planning no regular vacation period, preferring to give their employes their stipulated vacations on a stagger system.

The first week in July overlaps the annual period during which the Holyoke Water Power Co. drains the canals so that necessary repairs may be made on wheels, race-ways and other water power installations both on the company's system and in the individual mills. The canals will be dry from Wednesday night, the eve of the Fourth of July, through Sunday night.

Paper mills closing the week of the Fourth are Whiting's, Marvellum, Carew, Valley and Chemical.

The Crocker-McElwain mill will be closed from this week-end until June 24 except for a skeleton crew in the finishing rooms.

The American Writing Paper Corp. and the Franklin Paper Mill will close from July 3 to July 15; the Newton mill will close from July 3 to July 8.

Plants that will give their employes their vacations on a staggered basis include the National Blank Book Co., White & Wyckoff, Hampshire Paper Co., and the Perfect Safety Paper Co.

USES Finds Employment Up In Pittsfield Mills

PITTSFIELD, Mass. — Total employment in paper mills in this area is ten per cent higher than a year ago, all due to the return of World War II veterans, the U. S. Employment Service reported.

This does not necessarily mean an increase over prewar employment, for most paper mills operated shorthandedly during the war, Manager Raymond A. Warnock of the local office said. The paper mills here, according to the report, encountered no particular difficulties in securing adequate materials or labor during the past month and have kept production schedules normal.

With the exception of Crane Paper company in Dalton, which hopes to expand its stationery department, no substantial labor requirements are anticipated by area employers in the near future, the report noted.

Controllers Elect Chadbourne

SPRINGFIELD, Mass. — Joseph A. Chadbourne of the Old Colony Envelope company was elected secretary-treasurer of the Springfield Control of Controllers Institute of America at the control's annual meeting last week in Hotel Sheraton. Magnus F. Peterson of the United States Envelope Co. was elected a director.

Tissue Offer Fails To Satisfy Employes

HOLYOKE, Mass. — American Tissue Mills employes, belonging to Eagle Lodge of Papermakers, at a special meeting Sunday, voted to reject an offer made by the mill management during contract negotiations last week. Points of the offer which particularly dissatisfied the workers are an 8-cent hourly wage increase, as compared with 13½ demanded by the union, and pay for only three workless holidays as against six asked by the workers.

The negotiating committee was instructed to arrange for a further conference with management.

After the special meeting of Tissue workers, Eagle lodge as a whole held its regular meeting with only routine business transacted. President Andrew Beaton of the lodge was in Boston attending the first organization meeting of a new council to represent the 50 New England branches of the International Brotherhood of Papermakers, AFL. The next council meeting will be held in October.

As representatives of employes of the American Tissue Mills, members of the Eagle Lodge of Papermakers, AFL, planned to meet to take a final strike vote, the company today made its first official statement of its stand in the dispute.

Benjamin F .Perkins, president, incensed at what he termed "unfavorable newspaper accounts of the negotiations," issued the following statement:

"For some time it has appeared to the officers and directors of the American Tissue Mills that local newspaper reports of our current negotiations with Eagle Lodge of Papermakers have been garbled, incomplete and unsatisfactory. This, we assume, is due to faulty information received by reporters.

"Contrary to published reports, we have agreed to a call time clause, and we have not only agreed to shift differentials but we are already paying such differentials. Our two small paper mills in South Hadley are in no way comparable to the fine paper mills of Holyoke. Ours are strictly specialty mills and we compete in no way with the Holyoke mills.

"We are already paying our Eagle Lodge of Papermakers employes for two holidays on which they do not work at all, and we are offering them another day's pay on the same basis. This is the same arrangement we recently made in a year's contract with local 203, AFL, at our Crescent street plant.

"As of last week, 94 companies in the paper and pulp industry gave no pay whatever for holidays not worked, three paid for one holiday, 13 for two, 59 for three and only nine paid for six holidays without work. The latter group, we believe, included the Holyoke paper mills with whom we do not compete, our product and our market being entirely different.

"We have offered more paid holidays than our competitors. The pay increase we have offered is in line with comparable rates of our competitors. Our offer to Eagle Lodge, with agreements we have made with other unions, will increase our union employes' pay by more than $106,000 over 1945. We cannot assume further financial burdens and meet the keen competition in our field. We have kept our paper mills running at times when it would have been cheaper for us to buy elsewhere the paper we needed for our converting plant. Often, in fact, they have operated at a loss, as was the case last year."

Union leaders meanwhile reported that their demand for a flat increase in wages of 12½ cents an hour and three additional holidays with pay, bringing to six these unworked holidays, was met with a counter proposal of seven cents an hour and one additional holiday. The union claimed the company has refused to negotiate further, saying that these are the firm's top concessions.

British Columbia Mills Sign New Joint Labor Contract

VANCOUVER, B. C. — Labor agreements covering 1946 - 1947 have been signed between four British Columbia pulp and paper mills and union representatives. The agreement covers approximately 4,000 employees and grants a general wage increase of 15 cents an hour, and a 44-hour week.

The agreement was signed between the British Columbia Pulp and Paper Company, Ltd., Pacific Mills, Ltd., Powell River Company, Ltd., and Sorg Pulp Company, Ltd., on behalf of the employers, while the International Brotherhood of Paper Makers (A.F.L.) and the International Brotherhood of Pulp, Sulphite and Paper Mill Workers (A.F.L.) signed for the employees.

The new agreement followed nine days of negotiations in Vancouver, in which round table discussions were carried on between the parties on an extremely friendly basis.

Additional adjustments were also made in mechanics' and paper makers' rates.

A joint statement issued by the management and union representatives said, "This settlement comes at a time when strikes and strike threats are prevalent in this city and province. The British Columbia pulp and paper industry has an enviable record in labor relations. . . . Equal number of employees and employers sit down at a conference table and all matters in question are discussed freely.

"Since 1937 their differences have been settled in a fair and harmonious manner."

John Sherman, Tacoma, international vice-president of the Pulp, Sulphite and Paper Mill Brotherhood, said: "We have been conferring since May 20. We have had our differences, but by maintaining a firm resolve to reach a proper conclusion, we have made history for this province and for the Dominion.

"If other labor organizations would attempt to use the same methods, they, too, could do business with their employers in a friendly, equitable and businesslike manner."

Alberta Expects Development Of Peace River Area

VANCOUVER, B. C.—Development of a new industry is planned in the Peace River area of Alberta. A step in this development involves the purchase of timber valued at approximately $100,000,000 for processing and manufacturing of wood products. While details are not available, informed sources in Edmonton say the Dominion and Provincial governments, together with powerful Canadian and United States financial interests, are behind the project. Purchase of timber over a wide area of the north country, from High Prairie, Alberta, to Dawson Creek, B. C. and north to the town of Peace River is involved.

It was indicated by plans for erection of a huge plant for preliminary processing and prefabrication that this project was likely to be built in the Peace River area at a point where adequate rail facilities would be available.

Johnstone Opens Own Plant

PARKESBURG, Pa. — The Johnstone Engineering and Machine Company, manufacturers of slitters, winders and re-winders, has opened its manufacturing plant, with offices, engineering and sales departments, on the main line of the Pennsylvania Railroad, 44 miles west of Philadelphia.

Mixer Bulletin Illustrates Varied Applications

MUNCY, Pa. — Sprout, Waldron & Company, engineers and manufacturers of disc refiners for the paper industry, have just issued an attractive new "Special Mixer" bulletin which illustrates and describes many unusual applications where Sprout - Waldron individually designed mixers have answered the particular mixing problem. This new bulletin is now available for distribution and can be had upon request.

PAPER TRADE JOURNAL

Title Reg. U. S. Pat. Off.

W. L. Cook, Editor

MERGERS AND COMBINATIONS

Protagonists for any given pre-selected economic theory find it easy usually to discover examples of the tendencies that they oppose. With a few facts of record pleaders for a cause can go further and reduce their arguments to a sympathy-stirring paragraph that pictures the harm that follows the acts to which they object. Nor are their illustrations without substantial foundation; competition always implies that one shall be more successful than his less skillful fellow. The danger to the loser is always real.

But the proponent of a theory who fails to acknowledge other sides of the story, other varieties of the facts, often also fails through his very bias to seek for any benefits that may be hiding back of the facts that he cites. Such pleaders have been by no means rare of late years, and one such still occupies a prominent position in official Washington in the person of the Secretary of Commerce.

In a statement made public this week which views with alarm the thought that "competition will be further reduced and the opportunities for small business further limited" the Secretary lumps paper mills with alcoholic beverages, pharmaceutical companies, textiles, and metal fabricators as among the leading examples of the strong taking over the weak, though he fails to specify that in most cases the paper industry has shown a reversal of the trend that he finds among these industries. In the paper mill field the examples most frequently pointed out as threatening have involved the user acquiring domination of the source of supply. In some conspicuous cases the process has been reversed, to be sure, and producers have acquired converting companies.

Actually the process is by no means confined to the paper industry, it is shown. Instead it is a part of a bigger economic picture that is unfolding with reconversion.

Since VJ-Day, the Secretary finds, there has been a sharp increase in corporate mergers and the acquisition of small firms by larger ones, a trend closely resembling the corporate concentration that occurred following World War I. In the fourth quarter of 1945 mergers and acquisitions reached the highest level since 1931, and preliminary indications are that the high rate is continuing, Mr. Wallace said. If it continues for a number of years, he expects it will have important repercussions on the nation's economic system, primarily because competition will be further reduced and the opportunities of small business further limited, he said.

Compared with the first quarter of 1945, the number of mergers and acquisitions during the first quarter of 1946 was up one-third. However, following a normal seasonal trend the number for the first quarter of 1946 was below that for the last quarter of 1945.

Recent corporate mergers have been most pronounced among alcoholic beverage companies, drug and pharmaceutical companies, dairy concerns, paper mills, textile mills and metal producing and fabricating plants.

In comparing the present trend with our experience following the First World War, Mr. Wallace said that the wave of mergers and acquisitions starting in 1918 continued through 1919, 1920 and the early part of 1921, until interrupted by the post-war depression. In 1925, after prosperous business conditions had returned, the absorption and purchase of businesses was renewed at an accelerated rate and reached all-time peaks in 1928 and 1929.

The recent increase in mergers and acquisitions began shortly after the attack on Pearl Harbor and continued during the entire course of the war. Most of the mergers occurring from 1941-1945 involved nondurable goods industries. However, since VJ-Day an increasing number of durable goods industries have been involved and there has been a spectacular increase in the number of small firms absorbed by larger ones.

The highly liquid asset position of the nation's corporations, their ownership of well-established nationwide outlets, and their nationwide advertising programs all give impetus to the trend toward further corporate mergers and acquisitions, Mr. Wallace said.

He gave the following examples of recent mergers and acquisitions involving seven industries:

During the first two months of 1946 a selling wave resulted in change in ownership of an estimated 1,000,000 (M) spindles of the cotton textile industry's 23,800,000 (M) spindles. On May 16, 1946, the merger into one company of 10 South Carolina mills at a cost of $50,000,000 (M) was reported.

During the war big liquor companies absorbed numerous distilleries and also entered the winery field on a large scale. The three largest liquor com-

Calendar of Coming Events

June 28-29, 1946—TAPPI Maine-New Hampshire Section, Rangley Lakes House, Rangley Lakes, Maine.

September 26-28, 1946—TAPPI General Fall Meeting, Hotel Statler, Detroit, Mich.

October 2-4, 1946—TAPPI Engineering Conference, Pfister Hotel, Milwaukee, Wis.

November 4-6, 1946—National Paper Trade Association, Fall Convention, Palmer House, Chicago, Ill.

panies in the United States acquired 22 distilleries, six wineries, one brewery, one cooperage firm and one carbonated water concern in the years 1940-1945. Four big distillers now not only control approximately 60 percent of the distillery capacity of the nation but also own better than one-fifth of the California winery storage capacity, as well as half the aging California wines, Mr. Wallace said.

Seven of the largest steel corporations bought up more than 35 smaller companies in the period 1940-1945. Through these acquisitions the big steel companies further extended their control over production of steel barrels, steel culverts and other steel products.

Many giant dairy concerns that were formed through mergers in the 1920's have renewed their acquisition drive, absorbing numerous smaller milk, cheese and butter factories in various parts of the country.

Large chain grocery stores have in recent years not only acquired smaller chains, but also have continued the integration of their operations by purchasing meat plants and small plants producing specialty foods.

One large drug and pharmaceutical company made 31 acquisitions between 1940 and 1945 and extended its activities into such diverse lines as baby foods, dairy products, coffee and prepared baking mixes. This company is one of five leading drug and pharmaceutical houses closely associated under one interest. Together they accounted for 30 percent of the corporate sales in the industry in 1942.

In the paper industry, many mills have converted from newsprint to book paper and magazine publishers have purchased mills in order to assure their source of supply.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1946		Corresponding Weeks—1945	
May 11	102.8	May 12	85.4
May 18	98.3	May 19	92.5
May 25	99.2	May 26	92.0
June 1	96.3	June 2	87.9
June 8	104.0	June 9	92.8
June 15	*104.0*	June 16	*91.5*

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1945	86.7	89.4	90.2	88.1	89.8	91.2	80.8	88.6	90.2	95.9	95.5	91.0	89.7
1946	94.7	98.4	104.4	102.7	*100.7*								

COMPARATIVE YEARLY SUMMARIES

	1939	1940	1941	1942	1943	1944	1945	1946
Year to Date	79.6	86.8	93.1	99.7	88.8	88.6	88.9	*100.2*
Year Average	83.4	85.6	97.4	90.4	87.8	88.1	89.7	

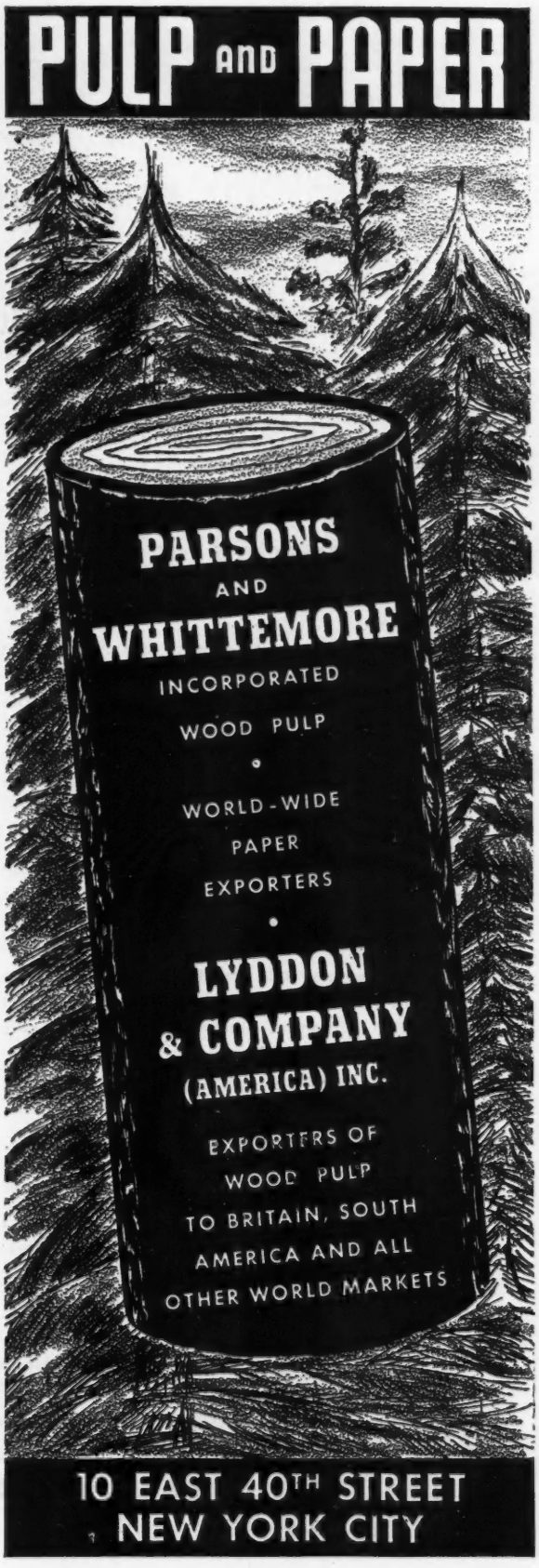
* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS†

Current Weeks—1946		Corresponding Weeks—1945	
May 11	97	May 12	94
May 18	92	May 19	97
May 25	93	May 26	97
June 1	85	June 2	93
June 8	96.	June 9	97
June 15	*98*	June 16	*96*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1945	91	95	97	97	96	96	86	90	91	97	95	85	93
1946	90	97	100	99	*94*								

† Percents of operation based on "Inch-Hours" reported to the National Paperboard Association.



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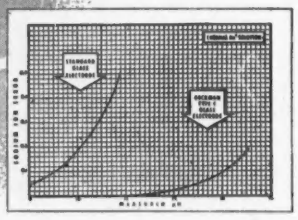

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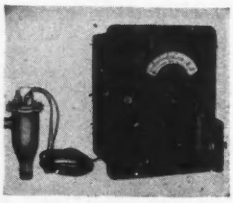
HARD SERVICE Still another typical Beckman development is the "X9" Electrode—a glass electrode particularly designed for unusually severe operating conditions such as continuous immersion in paper pulps, in ore slurries and other abrasive materials. So sturdy is this electrode that it withstands more than 100 pounds direct force on the immersion end without breaking, and its thick walls withstand an unusual amount of abrasion.



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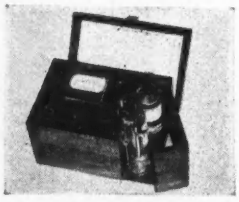

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Edited by R. G. Macdonald, Secretary

De-Inking of Waste Papers*

An Analysis of the Mechanism of Washing

By H. O. Ware[1] and R. T. Washburn[2]

Abstract

A technique is described for measuring the washing efficiency of a Hollander-type washer for de-inking waste papers. The washing process is treated as a series of stepwise displacements. Theoretical and actual washer performance were established to permit calculation of the washing efficiency of the Hollander washer. The theoretical washer performance was established by both physical and chemical measurements, and a correlation between them permitted employing chemical measurements for trial runs. The actual washer performance was measured by the rate of brightness increase and rate of ash decrease of the disintegrated waste papers. The washing efficiency of a Hollander beater utilizing these criteria was found to be 21 to 43% under the conditions studied.

A procedure is presented for employing chemical measurements in the evaluation of theoretical beater performance. A procedure is described for the preparation of handsheets from disintegrated waste papers for the brightness determinations.

Basically, the process of deinking waste papers consists of disintegrating, laundering, and bleaching the waste papers with the object of producing a papermaking fiber which is high in brightness and free from printing ink and nonfibrous materials which would adversely affect its subsequent reconversion into paper. The methods and equipment by means of which this objective is accomplished in commercial practice have been described in detail by O'Connor *(1)*, Morrison *(2)*, Shubert *(3)*, Milham *(4)*, Clark *(5)*, Coughlin *(6)*, and others. The processes described by all these authors consist of sorting, dusting, shredding, cooking, washing, bleaching, riffling, refining, and screening the waste paper. The sequence of these operations is subject to some variation depending upon the individual mill's requirements.

It is apparent that it is during the washing operation that the printing ink and associated impurities are actually removed from the system. During the bleaching operation a portion of the remaining impurities are altered chemically either making them less objectionable or preparing them for subsequent removal by "bleach washing". Certain portions of the impurities present in waste paper are not bleachable, whereas other portions are not removable by washing. Washing removes those impurities which are not bleachable and in addition, by removing the major portion of bleachable impurities, decreases to a minimum the bleach requirement. The present authors have made a quantitative study of the washing mechanism in a Hollander washer beater, not only because of the importance of the washing operation to the overall success of the deinking process, but also because the facility of washing reflects the thoroughness of the preceding operations.

The Hollander washer beaters used in this study are of commercial size and conventional construction having one beater roll, a dummy bed plate, and two octagonal washing cylinders covered with 60-mesh wire. Specifically the washer is 23 feet 11.5 inches long, 10 feet 2 inches wide, with a working depth of 36 inches. The operating capacity of the washer is estimated to be 576 cubic feet, equivalent to approximately 36,000 pounds of water.

The old papers are cooked in a rotary cooker, dropped into a pit, diluted with fresh water, and charged to the washer by a centrifugal pump. During washing, fresh water is continuously added to the beater washer ahead of the beater roll at a rate of approximately 1,000 pounds per minute. The fresh water moves with the stock under the beater roll where it is thoroughly mixed and passes to the opposite side of the beater washer where a portion of water equivalent to the fresh water addition is removed by the octagonal cylinders. By this system of washing, water is added continuously to the beater washer at one point and is continuously removed from the beater washer at a different point, while the stock is travelling continuously around the beater washer. Even though this operation appears to be functioning in a continuous manner it can be demonstrated that theoretically the beater washer is washing in a series of stepwise displacements wherein the contents of the beater washer are subjected to one displacement step each time it travels around the beater washer. These stepwise displacements result primarily from the fact that the beater mixes only a small fraction of the beater washer contents at a time. The quantitative relationship between the series of stepwise displacements and the amount of washing achieved is a factor of prime importance in evaluating the operating variables and establishing the efficiency of the washing operation.

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[1] Service Engineer, Paper Makers Chemical Dept., Hercules Powder Co., Kalamazoo, Mich.
[2] Chief Chemist, Paper Makers Chemical Dept., Hercules Powder Co., Kalamazoo, Mich.

Testing Procedures

Ash Procedure

Prior to the ash determination, the sample was thoroughly dried. The moisture-free material was ashed in accordance with TAPPI Procedure T413-40.

Chloride Ion Determination

The chloride ion concentration of the beaters was determined by filtering effluent liquor from the fibrous mass and insoluble material, and titrating the filtrate with $N/71$ silver nitrate using a saturated solution of potassium chromate as an indicator. The results were reported as parts per million of chloride ion.

Brightness Determination

Preparation of Handsheets

Apparatus

1. Hamilton Beach food mixer—Model B.
2. Hamilton Beach No. 18 malted milk mixer.
3. Friction drive agitator—Central Scientific Company, 1/12 hp. motor.
4. Noble and Wood sheet machine.

Reagents

1. 12% Iron-free alum solution.
2. Distilled water.

Procedure. Take the sample as submitted and, if it is higher than 4% consistency, dilute to 4% with distilled water; if lower, screen out the stock to about 4% consistency. *Save all the liquor.*

Defiber 400 gram portions of the 4% consistency stock in a Hamilton Beach malted milk mixer for 10 minutes. After all the sample has been defibered, pour back any liquor that had been removed before defibering and agitate the whole sample thoroughly. For this operation employ the friction drive agitator using a 3-inch (three) blade propeller at a slow speed for low consistency stock or the Hamilton Beach food mixer on speed 1 for stock 4% consistency and higher. Continue this agitation while taking enough of the sample to make a 10 to 15 gram sheet. Take no less than ten representative portions of the sample for each sheet and make three sheets from each sample submitted.

For each sheet, add sufficient iron-free alum solution (12%) to regulate the pH to approximately 4.5 to 5.0. After agitating mildly for 2 minutes, make a rough check on the pH. Agitate 8 minutes longer and accurately check the pH. It should be within the specified 4.5 to 5.0.

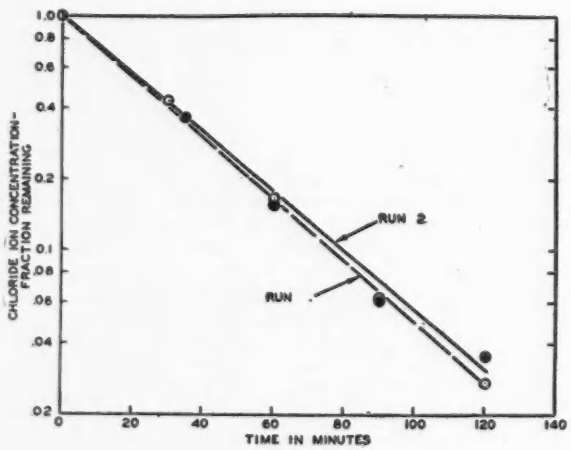

Fig. 1

Fraction of Chloride Ion Concentration Remaining Versus Time

While the stock is being agitated for 10 minutes, prepare the deckle box of the Noble and Wood sheet machine as follows: Clean the deckle box thoroughly, being certain all the dirty water is out of the drain pipe below the box. Select and place a clean, flat screen on the deckle box. Run water up through the screen for at least a minute, then close the deckle box and adjust the water in the drain to the level of the screen.

After the stock has been agitated the proper time and adjusted to the correct pH, pour the stock into the deckle box and dilute with distilled water to 0.5% consistency. Agitate 20 times using the regular deckle box plunger. Draw off the water and wait 2 minutes before opening the box and removing the screen in order to allow ample time for the water to be drawn out of the fibers.

Allowing the sheet to remain on the screen, remove both and pass them through the press between clean felts. Number the sheet.

Next pass both screen and sheet through the drier (214° F.), first with the felt side toward the cylinder then with the screen toward the cylinder.

Remove the sheet from the screen and place in an envelope until cut and tested. Cut 1-inch strips from

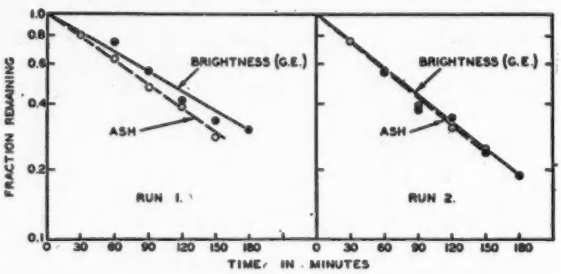

Fig. 2

Fraction Remaining Versus Time

the four sides of the sheet; discard these; then cut the remaining 6-inch square into four 3-inch squares.

Prepare three handsheets as described above and measure the G.E. brightness of each of the twelve squares. Brightness should be identical on felt and wire sides. The individual determinations should check within ±0.7% brightness. Report average of twelve readings as brightness of stock.

Thoroughly Washed Samples

Preparation of the stock for handsheets representing the inherent brightness of the pulp was accomplished by an accelerated washing procedure. Approximately 100 grams of stock was placed in a 60-mesh screen and washed for a period of 15 minutes with a rapid stream of tap water running through it while the pulp was agitated by hand. The water drained from the pulp should run clear for the last 5 minutes of this procedure.

Brightness Measurement. Brightness measurements were made on a G.E. Brightness Tester. The procedure followed was that outlined in the General Electric pamphlet "Instructions for Using the General Electric Reflectance Meter (Brightness Tester)—April 1937".

Theoretical Washing Rate

As a cross sectional segment of the contents of the beater washer travels past the fresh water inlet it is diluted. After passing under the beater roll it can be presumed that the composition of the segment is uniform. The segment, upon passing under the

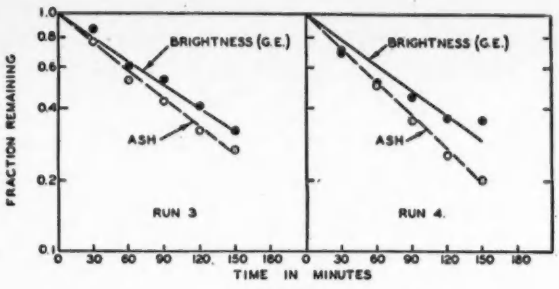

FIG. 3
Fraction Remaining Versus Time

octagonal washer screen loses an amount of water equivalent to the dilution water previously added, thus resuming its original volume. This results in a partial displacement of the original contents of the segment, the magnitude of which can be represented by the following ratio:

$$\text{Fractional Displacement} = \frac{\text{Quantity of wash water added to segment}}{\text{Quantity of water present in segment after dilution}}$$

In terms of measurable variables associated with the Hollander washer beater, this relationship can be expressed:

$$Q = \frac{W}{W + ALD\ (1-C)} \qquad (1)$$

where:
Q = Fractional displacement of segment
W = Weight of washwater added to segment
A = Cross sectional area of segment
L = Length of the segment
D = Density of stock
C = Consistency of stock

For the purpose of analysis, therefore, the action upon this segment can be considered as a displacement of definite magnitude. Upon expanding the size of the segment to embrace the entire contents of the beater, it will be apparent that such a dilution and concentration takes place for each complete cycle of the contents of the beater. Hence, the volume of the segment becomes the volume of stock in the beater and equation (1) becomes:

$$Q = \frac{W_c}{W_c + V\ (1-C)} \qquad (2)$$

where:
Q = Fractional displacement per cycle
W_c = Weight of washwater added per cycle
V = Weight of beater contents

The analyses involved in studying a Hollander washer beater are conveniently handled by expressing the fractional displacement in terms of the fraction remaining of the original volume. The fraction remaining after the first complete washing cycle may be expressed as:

$$S_1 = (1 - Q) \qquad (3)$$

where:
S_1 = Fractional part remaining of the original contents in the beater after the initial cycle
Q = Fractional displacement

The fraction remaining in the washer beater after a washing period consisting of (n) complete washing cycles may be represented:

$$S = (1 - Q)^n \qquad (4)$$

or

$$S = (1 - Q)^{yt} \qquad (5)$$

where:
S = Fractional part remaining of the original contents in the beater
n = Number of washing cycles
t = Time in minutes
y = Number of cycles per minute

Determination of the cycling rate (y), which is necessary in order to use equation (5), requires measurement of the average velocity of the stock in the beater washer. Because of the nature of the pulp slurry and the geometry of the beater itself, it is difficult to make this measurement with precision. This necessity has been obviated by substituting the fractional displacement per minute (X) for fractional displacement per cycle and time (t) for number of cycles (yt) in equation (5).

$$X = \frac{R}{R + V\ (1-C)} \qquad (6)$$

where:
X = Fractional displacement per minute
R = Weight of washwater added per minute

Hence,

$$S = (1 - X)^t \qquad (7)$$

and

$$X = 1 - S^{1/t} \qquad (8)$$

Although equation (8) is only an approximation of equation (5), it can be shown that, when the rate of cycling (y) varies from 0.5 to 2.0 cycles per minute, the use of this approximation introduces an error of less than 1.5% into the calculations. Since the use of equation (8) in place of equation (5) simplifies considerably the handling of the data collected during this investigation without detracting from the precision of the results, the approximate relationship has been used throughout this work.

Measurements of the dimensions of the washers under study permitted a calculation of the total contents of the washers at normal operating levels. This was found to be 576 cubic feet, equivalent to 36,000 pounds of old paper stock. Since a charge contains approximately 2,300 pounds of moisture-free old papers, the remaining 33,700 will be water. At an average washwater flow of 1000 pounds per minute (X) may be calculated as follows, using equation (6):

$$X = \frac{1000}{1000 + 33{,}700} = 0.0289$$

To check the validity of the engineering calculations, chloride ion in the form of sodium chloride was added to the washer beater and periodically checked for concentration remaining as washing proceeded. The data thus obtained are presented in Table I and Fig. 1.

TABLE I.—CHLORIDE ION CONCENTRATION AND THEORETICAL WASHER PERFORMANCE VERSUS WASHING TIME

Time, minutes	P.P.M. Chloride Ion Concentration		Theoretical Washer Performance (X)	
	Trial 1	Trial 2	Trial 1	Trial 2
0	3400	2720	.....	.....
30	....	1170	.....	0.0327
35	1230	....	0.0287	.....
60	528	450	0.0307	0.0296
90	208	173	0.0307	0.0301
120	121	76	0.0273	0.0293
Average	.....	.....	0.0294	0.0304

When the fractional parts of chloride ion remaining are substituted in equation (8), values are obtained for (X) as shown in Table I. It will be ob-

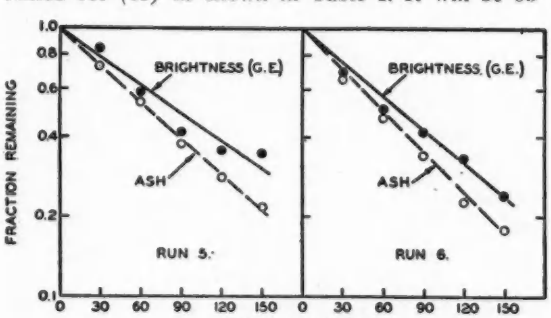

FIG. 4
Fraction Remaining Versus Time

served that these values are in good agreement with the value calculated above from washer dimensions and washwater flow.

The theoretical washing rate is defined as the fractional displacement per minute *(X)*. It was originally thought that once the theoretical performance of a washer had been established by the means outlined above, this value could be used as a basis for all subsequent evaluations of the actual performance of that washer. However, it was found in practice that the theoretical performance of a washer was subject to considerable variation from one run to another. Since theoretical washer performance is a function only of rate of washwater flow and quantity of water in the beater, it follows that one or both of these factors varied from run to run. Specific operating variables which contribute to this variation include stock consistency, cleanliness of the screens, screen displacement, etc. It was, therefore, obviously necessary to determine *(X)* for each trial by one of the methods described above. In this case the chloride ion procedure was used since it required less attention and was better adapted to the facilities which happened to be available. The magnitude of the variations which can be expected are shown in Table IV.

Actual Washing Rate

The actual washer performance is the rate at which undesirable impurities are removed from the fiber. It is assumed that the actual washer performance is proportional to the theoretical performance and that this proportionately represents the efficiency of the washing operation *(K)*. Thus the actual performance can be represented by *(KX)* where *(K)* is the efficiency factor and *(X)* is the theoretical beater performance. Hence, by introducing the efficiency factor *(K)* into equation (8), the following relationship for actual washer performance is obtained.

$$KX = 1 - S^{1/t} \qquad (9)$$

where:

K = Efficiency factor
X = Displacement ratio per minute
S = Fraction of undesirable impurities remaining at time (t)

The practical application of equation (9) necessitates measurement of the rate of change in concentration of the undesirable impurities during washing in terms of some measurable property of the impurities. Two criteria are at once apparent: (1) brightness improvement and (2) ash reduction. In utilizing brightness measurements for evaluating changes in concentration of undesirable impurities, it is necessary to determine (1) the brightness of the stock before washing (initial brightness), (2) the brightness of the stock at test points during the operation (temporary brightness), and (3) the brightness of the stock after washing until no further measurable change is effected (inherent brightness).

Utilizing these definitions for brightness it will be apparent that for any washing period the following relationship exists:

$$S_b = \frac{B_3 - B_2}{B_3 - B_1} \qquad (10)$$

where:

B_1 = Initial brightness
B_2 = Temporary brightness
B_3 = Inherent brightness
S_b = Fraction of attainable brightness increase which has not yet been achieved

and similarly

$$S_a = \frac{A_2 - A_3}{A_1 - A_3} \qquad (11)$$

where:

A_1 = Initial ash content
A_2 = Temporary ash content
A_3 = Inherent ash content
S_a = Fraction of ash remaining

After having been analytically determined, S_a and S_b are used in equation (9) to determine actual beater performance. Six trial runs were made measuring the change in ash content and the change in brightness of stock during a washing period of commercial duration. The data obtained for the change in ash and brightness, together with the calculation of the actual beater performance *(KX)*, are presented in Tables II and III and in Figs. 2, 3, and 4.

In accordance with expectations, the G.E. brightness of the stock continued to increase throughout the entire washing period. At the end of the commercial washing, the stock had not been washed to its inherent brightness but in general approached its inherent brightness approximately 65%. The values for actual washer performance *(KX)* were lower than the values for theoretical washer performance *(X)*, as was expected.

The change in ash content during washing is conversely similar to the change in brightness during the washing period. The ash content was reduced during commercial washing to a value approximately 25% of the initial ash. It is interesting to observe that the inherent ash content of old paper stock remained reasonably constant at approximately 1% for all six trial runs. Again the values for actual beater performance *(KX)* were lower than the theoretical beater performance *(X)*. The data obtained for actual beater performance based upon ash also vary somewhat as washing progresses, but the variation is less than in the data based on brightness. The greater uniformity of values for washer performance as measured by ash removal is probably because of the greater precision of the ash determination.

The actual beater performance based upon changes in ash content is similar to the actual beater performance based upon brightness with respect to the absence of general trends in the values of KX as the washing operation proceeds. The fact that there is no constant change in the KX value during a washing period, together with the fact that there is no regularity in the differences between the initial KX value and succeeding KX values, suggests that the stock as charged into the beater is substantially completely disintegrated and that the amount of mechanically bound dirt liberated by the beater during the washing period is less than the experimental error involved in collecting the data.

TABLE II.—BRIGHTNESS OF STOCK AND ACTUAL WASHER PERFORMANCE VERSUS WASHING TIME

Time, minutes	G. E. Brightness						Actual Washer Performance (*KX*)					
	1	2	3	4	5	6	1	2	3	4	5	6
0	35.4	36.4	34.5	34.8	33.4	31.4	.....	.....	.....	.....	.....	.....
30	...	...	36.5	38.8	36.8	36.9	.....	.....	0.0048	0.0121	0.0084	0.0127
60	39.0	42.3	40.3	41.3	39.8	40.0	0.0049	0.0100	0.0082	0.0114	0.0091	0.0115
90	41.7	44.6	41.4	42.3	42.3	41.6	0.0060	0.0109	0.0072	0.0094	0.0098	0.0099
120	43.7	45.0	43.3	43.3	43.2	43.0	0.0073	0.0089	0.0075	0.0087	0.0087	0.0093
150	44.8	46.3	44.6	43.2	43.3	44.5	0.0070	0.0094	0.0076	0.0063	0.0071	0.0095
180	45.2	47.0	...	...	...	...	0.0064	0.0090	.....	.....	.....	.....
Inherent brightness	49.6	49.5	49.3	47.9	48.5	48.6	.....	.....	.....	.....	.....	.....
Average							0.0063	0.0096	0.0071	0.0095	0.0086	0.0106

TABLE III.—ASH CONTENT OF STOCK AND ACTUAL WASHER PERFORMANCE VERSUS WASHING TIME

Time, minutes	Ash Content of Stock, % on Air-Dry Basis						Actual Washer Performance (KX)					
	1	2	3	4	5	6	1	2	3	4	5	6
0	19.7	19.7	19.9	19.2	21.0	21.6	.....	.....	.....	.....	.....	.....
30	15.8	15.1	15.6	13.8	15.4	14.3	0.0078	0.0094	0.0086	0.0117	0.0091	0.0119
60	12.8	11.5	11.0	10.4	11.6	10.7	0.0077	0.0096	0.0106	0.0110	0.0106	0.0125
90	9.9	8.5	9.1	7.6	8.4	7.9	0.0083	0.0102	0.0110	0.0113	0.0110	0.0122
120	8.2	7.1	7.0	5.8	6.5	5.7	0.0080	0.0094	0.0096	0.0112	0.0108	0.0123
150	6.4	5.8	6.0	4.9	5.2	4.7	0.0083	0.0091	0.0079	0.0103	0.0105	0.0115
180	...	...	...	...	...	...	.....	.....	.....	.....	.....	.....
Inherent Ash	1.1	1.2	1.0	1.3	0.9	1.0	.....	.....	.....	.....	.....	.....
Average							0.0080	0.0095	0.0095	0.0111	0.0104	0.0121

The variations in actual beater performance with time of washing are appreciable and are similar to the variations found in the theoretical beater performance as demonstrated in Table I. Considering the variations which occur under commercial conditions with respect to rate of washwater flow and volume of the beater contents, these variations in theoretical beater performance are to be expected and would in turn be reflected proportionately in actual beater performance.

Washing Efficiency

Ten trial runs were evaluated for washing efficiency *(K)* by determining the theoretical beater performance *(X)* utilizing the chloride ion method previously discussed and the actual beater performance *(KX)* utilizing brightness and ash changes during the washing period. The data obtained during these trials are presented in Table IV.

The stock furnished to the beaters, which contained all the undesirable impurities originally present in the waste paper, ranged in brightness from 29.3 to 39.7. After washing 120 minutes in the Hollander washer beater the brightness of the stock ranged from 40.0 to 46.4. The inherent brightness varied from 48.5 to 54.2. The initial ash content varied from 13.7 to 22.2% for the different trial runs. The temporary ash content after a 120-minute washing period varied from 5.7 to 10.1%, while an inherent ash content of 1% (average of values presented in Table III) was used.

The variations in brightness and ash reported for the different runs are caused in part to variations in the composition of the old paper stock and in part to chemical modifications which were made in the cookers for reasons beyond the scope of this paper. The variations observed in the initial chloride ion content and temporary chloride ion content of the beaters are of no significance since these values are the result of the varying amounts of salt which were added to the beaters at the time of charging. These values assume significance only when used to calculate the theoretical beater performance for each individual trial.

Since it is the object of this report to present a quantitative method for evaluating the washing efficiency of a Hollander washer it is not within the scope of this report to interpret the interesting phenomena observed with respect to factors affecting the efficiency of the Hollander washer. Attention might well be directed to the possibility of manipulating these factors so as to achieve a substantial increase in washing efficiency from the present level of approximately 35%. Any improvements in washing efficiency would, of course, directly affect such items as washwater consumption, equipment capacity, processing time, and waste disposal. Although this study has been confined to the Hollander washer beater, the method of analysis which has been employed could be adapted to a quantitative study of other types of washing equipment. The factors affecting the efficiency of the unit studied would, in all probability, bear strongly on other processes involving the washing of fibers.

It will be observed that variations were obtained among the ten trial runs for brightness and ash washing efficiency. These variations can be attributed in part to the variations made in the cooking procedure and hence may be interpreted as indicating correlation between cooking procedure and washing efficiency. The efficiency of the washing operation for any given trial run yielded different values based upon brightness and ash. No attempt has been made to evaluate the cause of these differences, which might conceivably be a clue to an evaluation of the cooking procedure. The filtering effect during the washing operation might largely account for the differences between the brightness and ash washing efficiency if the brightness washing efficiency always exceeded the ash washing efficiency. Since the ash washing efficiency sometimes exceeds the brightness efficiency a problem is presented as regards the state of dispersion of low brightness impurities.

Literature Cited

1. O'Connor, J. J., *Tech. Assoc. Papers* 10: 121-2 (1927).
2. Morrison, H. A., *Tech. Assoc. Papers* 15: 189-191 (1932).
3. Shubert, C. A., *Tech. Assoc. Papers* 15: 331-3 (1932).
4. Milham, E. G., *Tech. Assoc. Papers* 15: 355-6 (1932).
5. Clark, F. C., *Tech. Assoc. Papers* 26: 306-8 (1943).
6. Coughlin, E. T. A., Manufacture of Pulp and Paper, 1st Ed., Vol. IV, Section 2. New York, McGraw-Hill Book Co., Inc., 1924.

TABLE IV.—ANALYTICAL DATA, WASHER PERFORMANCE, AND WASHING EFFICIENCY (*K*)

Trial No.	5	6	7	8	9	10	11	12	13	14
Initial brightness	33.4	31.4	29.3	30.3	30.3	34.3	35.5	35.9	39.7	38.9
*Temporary brightness	43.2	43.0	43.7	41.5	44.3	44.3	42.5	43.7	40.0	46.4
Inherent brightness	48.5	48.6	50.1	48.0	49.9	50.3	51.0	51.0	54.2	54.2
Initial ash, %	21.0	21.6	22.2	22.2	22.2	19.8	13.7	15.3	15.7	17.6
*Temporary ash, %	6.5	5.7	9.1	9.3	8.3	8.8	6.8	5.7	9.4	10.1
Inherent ash, %	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Initial chloride ion, p.p.m.	3400	2720	365	450	505	505	420	935	788	117
*Temporary chloride ion, p.p.m.	121	76	21	43	17	34	40	42	58	17
Inherent chloride ion, p.p.m.	1	2	2	2	2	2	2	2	2	2
Brightness KX	0.0087	0.0093	0.0098	0.0083	0.0104	0.0081	0.0049	0.0060	0.0046	0.0056
Ash KX	0.0108	0.0124	0.0081	0.0079	0.0089	0.0076	0.0063	0.0091	0.0046	0.0052
X	0.0275	0.0296	0.0239	0.0195	0.0277	0.0225	0.0193	0.0254	0.0213	0.0211
Brightness K	0.32	0.31	0.41	0.43	0.38	0.36	0.25	0.24	0.21	0.26
Ash K	0.39	0.42	0.34	0.40	0.32	0.34	0.33	0.37	0.22	0.24

* All temporary samples are for a washing period of 120 minutes.

Empire State TAPPI Entertains Supts.

The Empire State Section of the Technical Association of the Pulp and Paper Industry was host to the New York-Canadian Superintendents Association at the Thousand Islands Club on Wellsley Island June 13-15. Members, wives and affiliates to the number of 113 were in attendance at the three day meeting.

The committee included: P. D. Switzer and H. M. Rice, co-chairmen; H. A. Spencer, Martin Jaffe; Chace Mather, Program Chairman; John Treadwell, Transportation; G. E. Oesterheldt, men's golf; Mrs. E. W. Clarke, Mrs. P. D. Switzer, Mrs. F. J. Lang, and Mrs. H. M. Rice, Ladies Program.

On Thursday evening a motion picture, "Paper, Pacemaker of Progress," was presented through the courtesy of F. C. Huyck & Sons.

Papers presented included: "What Makes It Tick," C. W. Kennedy, Federal Products Company; "Remote Control of Stock Preparation," Walter Couture, Dilts Machine Company.; "Vocational Rehabilitation of Veterans Under Public Law 346 and Public Law 16," B. O. Larsen, Supervising Senior Training Officer, Veterans Administration, Watertown Regional Office.

R. G. Macdonald and J. W. Hemphill represented national TAPPI; J. P. Kane was official representative of the superintendents assocaition.

Prizewinners were: Mrs. E. W. Clarke, Mrs. James Foote, Mrs. F. C. Goodwill, J. J. Cudahy, Carl Gehring; Ladies' bridge, Mrs. Tom Loessi, Mrs. R. Rogers, Mrs. E. W. Clarke; Ladies' golf, low gross, Mrs. W. R. Adams, high net, Mrs. C. B. Hall, blind bogy, Mrs. Fred Ramage; Men's golf, low gross, C. P. Sutton, high net, H. E. Pedersen, blind bogey, Sam Stevens. A special gift was awarded to Chairman and Mrs. H. A. Spencer for his outstanding service.

Those present included:

A. Alcombrack, Mr. and Mrs. William Adams, Mr. and Mrs. Murray Bennett, Mr. and Mrs. Warren Beman, H. K. Carter, Mr. and Mrs. J. W. Couture, S. M. Conn, Mr. and Mrs. E. W. Clarke, Abe Cooper, C. M. Connor, O. N. Candee, Mr. and Mrs. James J. Cudahy, H. E. Dustan, Mr. and Mrs. Howard Duggan, John J. DeJongh, George Duers, D. R. Dick, F. L. Fennell, Mr. and Mrs. J. Foote, Mr. and Mrs. Emerson N. Glauner, Carl C. Gehring, E. A. Godfrey, Mr. and Mrs. Stanley Goodman, Mr. and Mrs. Fred C. Goodwill, Mr. and Mrs. C. F. Haskins, Mr. and Mrs. J. W. Hemphill, Frederick Heil, Mr. and Mrs. E. G. Ham, Mr. and Mrs. H. A. Horstmann, Mr. and Mrs. Robert Huntley, Donald Hunter, Mrs. C. B. Hall, Martin Jaffe, E. J. Johnstone, Mr. and Mrs. J. M. Kelly, L. E. Kelly, J. P. Kane, Mr. and Mrs. H. E. Karberg, Carl B. K'Burg, A. B. Leachy, Mr. and Mrs. Frank J. Lang, Mr. and Mrs. Tom Loessi, Mr. and Mrs. S. B. Leigh, J. Wayne Morrow, Henry Mellen, Chase Mather, Mr. and Mrs. H. A. Morrison, R. G. Macdonald, M. D. Myers, Andrew McVicker, G. E. Osterheldt, Mr. and Mrs. D. K. Pattilloch, Mr. and Mrs. Ralph W. Peters, Ralph Prince, Mr. and Mrs. Adam Pollak, Henry Perry, H. B. Peterson, Donald Parrish, Mr. and Mrs. Homer M. Rice, W. E. Roubie, Mr. and Mrs. R. Rogers, E. M. Root, Harold T. Randler, Mr. and Mrs. P. D. Switzer, Chas. P. Sutton, H. A. Spencer, J. R. Stebbins, Mr. and Mrs. Sam S. Stevens, James E. Shepard, Mr. and Mrs. Fred Ramage, Thos. Stafford, M. J. Sullivan, J. W. Swartz, Mrs. Horace Spencer, W. B. Treadwell, A. L. Trumpler, Mr. and Mrs. H. W. Vanderberg, Mr. and Mrs. William E. Wanstall, Vincent F. Waters, J. V. Wolff.

TAPPI Notes

Victor S. Burnstein, formerly of the U. S. Army, is now with the Michigan Paper Co., Plainwell, Mich.

Lawrence L. Clapp, formerly of the U. S. Army, is now chief chemist, Florida Pulp and Paper Co., Pensacola, Fla.

Alfred J. Corey, acting director of research, Fraser Companies, Ltd., Campbellton, N. B., has been transferred to Edmundston, N. B.

Charles N. Hagar, Jr., is now research engineer, B-F-D Co., Ogdensburg, N. Y.

W. N. Hall, formerly development manager, Alkali Division, Canadian Industries, Ltd., Montreal, P. Q., Canada is now vice-president in charge of research and development, Standard Chemical Co., Ltd., 195 Fleet St. E., Toronto, Ont., Canada.

Lian Po Hsiao is returning to China and after October 1st will be connected with the department of chemical engineering, National Northwestern College of Engineering, Sian, Shensi, China.

Donald W. Libby, formerly of the U. S. Navy, is now with the Oswego Falls Corporation, Fulton, N. Y.

Robert F. Nelson, formerly president of the Glassine Paper Co., W. Conshohocken, Pa., is now price executive, Paper and Paper Products Price Branch, Office of Price Administration, Washington, D. C.

Robert J. Proctor, formerly of the U. S. Navy, is now technical Superintendent, Fitchburg Paper Co., Fitchburg, Mass.

C. W. Richards, formerly chief chemist, Oxford Miami Paper Co., W. Carrollton, Ohio, is now assistant manager, International Paper Co., York Haven, Pa.

Andrew J. Snyder, formerly research engineer, Reichhold Chemicals, Inc., Detroit, Mich., is now in the Customers Service Laboratory, Reichhold Chemicals Inc., Tuscaloosa, Ala.

Sheldon J. Young, formerly of the U. S. Army, is now technical Supervisor, National Paper Products Co., Carthage, N. Y.

W. H. Lippincott has succeeded H. L. Springer, Jr., as representative of the Lobdell Company in the Technical Association.

R. F. Clemens has succeeded W. B. Gery as representative of the Dorr Company in the Technical Association.

Evaluation and Reduction of Pitch Trouble in Sulphite Pulp and Pulping*

By Otto Kress[1] and Philip E. Nethercut[2]

Abstract

An apparatus which, on a laboratory scale, duplicates somewhat the operation of a paper machine wire has been developed. The factors which affect the collection of pitch by this apparatus were investigated, and the optimum conditions for a maximum pickup on the screens were determined. From these, a standard procedure for pitch evaluation was developed.

This test was applied to a study of the effects of aeration of green chips on the stickiness of the pitch in the pulp produced from these chips. From a limited number of runs, it was apparent that this treatment produced marked changes in the physical characteristics of the pitch. Solvent extraction of the chips indicated that the changes produced by this aeration were similar to those which occur in the natural seasoning of wood.

Considerable research has been devoted to the study of pitch trouble and much has been published but, from a practical standpoint, both the determination of pitchiness of pulp and its elimination are still pressing problems.

Kress and Moss (*1*) made various suggestions regarding the causes and elimination of pitch trouble and Ragan and Kress (*2*) continued this work. Good reviews of the pitch trouble have been given by Phillips (*3*) and Potter (*4*).

Edge (*5*), on the assumption that the deposition of pitch on a machine wire is caused by its stickiness, proposed beating the pulp in a miniature ball mill under standard conditions and extracting the pitch which adheres to the balls and the mill walls.

Kress and Moss (*1*) investigated Edge's idea, replacing the ball mill with a heavy glass bottle containing steel shot. Working along a similar line, they evaluated pulps by beating them in a 1.5-pound Valley laboratory beater, with the idea that the pitch might be deposited on brass plates or submerged strips of fourdrinier wire. Although such deposition occurred, the data could not be correlated with mill conditions.

Ragan and Kress (*2*) devised an apparatus for measuring the plastic properties of pitch extracted from pulp under standard conditions. A somewhat similar apparatus was constructed by Green (*6*) to evaluate the tackiness of printing inks.

Phillips (*3*) studied the effect of aging on the chemical characteristics of pitch and the changes that occur in pitch when wood is seasoned. Other investigators (*7, 8*) have studied the effect of storing chips for periods of three weeks and of wood seasoned in log form from 1 to 2 years.

Hibbert and Phillips (*9*) have made a detailed examination of fresh and seasoned pitch obtained from jack pine. Richter (*10*) studied the ether and alcohol extracts of wood and came to the conclusion that oxidation promoted the changes which occur in solubility of the components of the pitches.

Potter (*4*), in studying the ether-soluble and the petroleum ether-soluble fractions, attributed the pitch trouble to the latter component.

Kress and Laughlin (*11*) investigated the effects of the vigorous aeration of green jack pine chips from the standpoint of solubility of the extractives in various solvents; the results seemed to indicate that suitable aerating of chips would reduce pitch trouble.

Experimental

Contact Angle Experiments

A rough measure of adhesiveness of a pitch can be obtained from the contact angle formed when the material being tested is withdrawn from a pool of mercury. The smaller this angle, the greater is the adhesion tension at the interface. The work of Huntington (*12*) suggested that a glass slide could be used to support a thin film of the pitch and, as this plate was pulled from contact with the surface of the mercury, the angle of tilt could be varied to ascertain the angle of contact. Since sticky materials generally adhere well to most metals, the adhesiveness of a pitch towards mercury would presumably give a measure of its tendency to deposit on a paper-machine wire.

The soundness of this reasoning was determined by tests with green and seasoned pitches. In the first experiments, the pitches were obtained by 3-hour ether extractions of the following: (1) wood meal of a seasoned spruce stick 15 months off the stump; (2) bleached sulphite lap pulp from unseasoned wood—this pulp has caused moderate pitch troubles in the mill; (3) wood meal from a freshly cut spruce stick approximately 1 month off the stump.

These extracts were concentrated to 10 to 20 ml. by evaporation at 50° C. Films were prepared by placing a few drops of each on separate glass slides and allowing them to dry in a vacuum desiccator. When evaporation was complete, the slides were placed in a mercury cell and slowly withdrawn. The interfacial angle between the pitch and the mercury was obtained by tilting the slide to the point at which the meniscus disappeared, and measuring the angle between the slide and the mercury level. The following angles of contact were obtained:

Pitch from seasoned spruce	
Pitch from pitchy pulp	25 to 30°
Pitch from green spruce	25 to 30°

This indicated that the film of seasoned pitch was actually the stickiest of the three; exactly the opposite had been expected.

A second series of tests was made in a slightly different manner. Since the physical properties of the fractions extracted by petroleum ether are generally considered to be a much more reliable indication of the nature of pitch, extractions were made with petroleum ether rather than with ether. This time, the adhesiveness was measured by pouring a few milliliters of the extract onto a plate glass and allowing the solvent to evaporate. A large drop of clean mercury was

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* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Hotel Commodore, New York, N. Y., February 25 to 28, 1946.

[1] Member TAPPI; Technical Director, The Institute of Paper Chemistry, Appleton, Wisconsin.

[2] Present address U. S. Navy.

placed on the film and pressed into it by another glass plate. When this upper plate was removed, the mercury drop contracted to a point where its surface tension was exactly balanced by the adhesion of the film. The height of the mercury drop gave a measure of the contact angle. If equal volumes of mercury were used in all cases, the adhesiveness of the different pitches could be compared. The following values were obtained:

	Height of Mercury Drop in.
Pitch from seasoned spruce	0.1288
Pitch from green spruce	0.1290
Pitch from nonpitchy pulp	0.1277
Pitch from pitchy pulp	0.1290

Since these slight differences are well within the limits of experimental error, this method is obviously unsatisfactory for differentiating pitches which will and will not give trouble on a paper machine. It illustrates the fallacy of assuming that the trouble may be attributed to a single group of constituents in the pitch—in this case, the petroleum ether-soluble fraction—rather than the aggregate.

Deposition on Screens

From the theoretical viewpoint, it would appear that the adhesiveness of a pitch determines its tendency to deposit on a paper machine wire. Therefore, it seemed reasonable that, if two suitable screens, rotating counterclockwise, were introduced into the path of the moving stock, these screens might pick up the pitch and give a measure of the potential pitch trouble that would be produced on the wire of a paper machine. After considerable experimentation, wire screens were prepared as follows: The spiral screens adapted for general work were made from 60-mesh plain-weave bronze wire, the wire being cut 4.5 by 6 inches, with the shute wires running lengthwise. The screen was soldered to a brass rod ⅛ inch in diameter and 6 inches in length and was rolled into the form of a spiral passing 1½ times around the shaft. The trailing edge was free so that the two screens pressed against each other when they were rotated; a Precision Vari-Speed stirrer was used, which caused the screens to rotate in opposite directions, the stock passing between the two screens and being pressed somewhat into the wire mesh.

A large number of test runs were made with troublesome pulps obtained from co-operating mills.

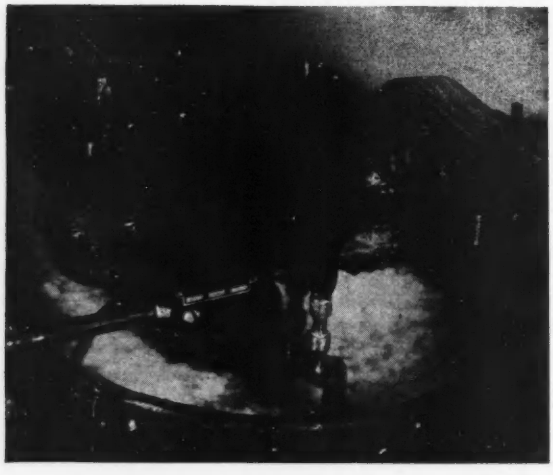


Fig. 1
Spiral Screens in Operation

The variables, such as time of operation, consistency and temperature of the stock, degree of beating, and the use of vanes to direct the flow of stock away from the walls of the beater and toward the revolving screens, were studied.

Figure 1 shows the spiral screens in actual operation in the beater; Fig. 2 shows the spiral screen used (one-half actual size).

From the data obtained, the following standard procedure was developed and applied to all of the later experimental work. A 1.5-pound Valley beater was filled with 18 liters of water, which were raised to 60° C. by the introduction of low-pressure steam. Three hundred grams (moisture-free basis) of the moist pulp were added gradually and slushed until thoroughly disintegrated. The screens were placed at the open end of the beater and submerged ⅔ of the way into the stock; a 4500-gram weight was placed on the bedplate arm and, with these screens rotating at 600 r.p.m., the stock was beaten for 15 minutes. Then the weight was removed and the stock was slushed for the remaining 1¾ hours. The screens were removed, rinsed in a beaker of water to remove any pulp, and extracted for an hour with ether in a Soxhlet apparatus. This extract was concentrated to a few milliliters, dried in an oven at 105° C. for 1 hour, and weighed. The weight of the extract was a measure of the pitchiness of the pulp.

Evaluation of Commercial Pulps

The reliability of this test was demonstrated in the following manner. A series of beater runs were made with varying amounts of a pitchy pulp mixed with a pulp known to be nonpitchy. In each case, the total pulp charge was the same (i. e., 300 grams moisture-free basis). The screen extracts obtained from these mixtures show that a clear relationship exists between the pickup and the amount of troublesome pitch in the pulp (Fig. 3).

Pitchy Pulp, %	Nonpitchy Pulp, %	Pickup, mg.
0	100	10
25	75	96
50	50	218
75	25	246
100	0	312

Over 40 pulps which had caused varying degrees of pitch trouble were received from nearby mills. Ether extractions gave a rough estimate of the amount of resinous material present in each. On the basis of these values and the mills' comments on the behavior of each, thirteen representative pulps were selected for pitch evaluation by the use of the screens. The results are summarized in Table I.

TABLE I.—PITCH EVALUATIONS OF COMMERCIAL PULPS

Pulp	Mill Comment	Ether-soluble, %	Pitch Pickup, mg.
A	Excessive amounts of pitch	1.90	7.4
B	Pitchy	2.18	126.4
C	More or less trouble	2.11	110.3
D	No comment	2.56	312.3
E	No comment—3 months old	2.08	89.8
F	No comment—3 months old	0.44	14.5
G	In general gives more trouble than "H"	2.86	3.5
H	No comment	1.07	11.6
I	No appreciable difficulties	2.30	47.6
J	Should not give trouble	1.76	70.2
K	Low in pitch	1.02	15.0
L	Not very much trouble	1.37	31.4
M	Does not have excessive pitch	1.71	10.1

Pulps E and F were unbleached sulphite pulps received from the same mills. They were tested because of the wide difference in their ether extractives values.

Pulps G and H were two unbleached sulphite pulps obtained from a second mill. Presumably, neither had caused much difficulty.

It should be remembered that these pulps had been stored in the mills for varying lengths of time before they were shipped. Since troublesome pulps lose much of their pitchiness on standing, it is not surprising that, in some cases, the pitch pickup did not correlate better with the mills' comments. This appears to be the most logical explanation of the paradoxical results obtained with pulp A. The fact that it alone was a Fidalgo pulp shipped in the form of dry crumbs, which had good exposure to air, whereas all of the others were moist lap pulps, makes this explanation all the more plausible.

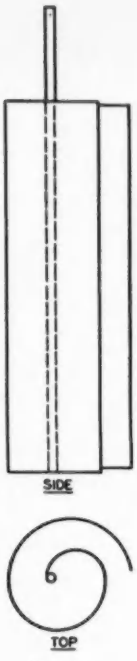


FIG. 2
Standard Spiral Screen

With the development of the proposed method of using the screens for evaluating pitch trouble, the original problem—namely, that of treating wood chips by a relatively simple procedure to reduce the potential pitch trouble from the resulting sulphite pulp, was now studied. Both green and seasoned sprucewood were barked, chipped, and screened at the Institute and the chips were aged by the following procedure.

Rectangular wooden boxes 5 feet by 6 inches by 6 inches (inside dimensions) and open at top and bottom were built. To aerate the chips, compressed air was admitted at the bottom through a 5.5-inch Büchner funnel. Two screens of 100-mesh wire were placed at right angles inside the funnel to distribute the air more uniformly. A plug of cotton was used over the screens to remove any danger from oil. Thermometers were inserted near the bottom and top of the container to indicate temperature changes that might occur during aeration. A trap was inserted in the compressed air line to filter out oil. A thermometer was also inserted to measure the temperature of the incoming air.

In all cases except one, the chips were aerated for 8 hours. When this treatment was half-completed, the position of the chips was reversed, so that a more uniform aeration could be obtained. Temperature readings were taken at regular intervals to indicate the rate of drying. When the aeration was finished, representative portions of the chips were reduced in a No. 1 Wiley mill to a size more suitable for extraction. Moisture determinations and a variety of organic extractions were made on the moist wood to indicate the effects of aeration. A 4-hour extraction period was used in each case. The extract was concentrated on a steam bath to a few milliliters, dried in an oven at 105° C. for 2 hours, and weighed.

The two portions of wood were pulped in a Mitscherlich sulphite digester, using perforated lead chambers. These containers were cylindrical in shape and were supported on three 1-inch legs. The chamber itself was 1 inch deep and 1 inch in diameter; its bottom, sides, and cover were perforated with 1/8-inch holes on 1-inch centers, so that a good circulation of the cooking liquor was obtained. The two containers were placed side by side in the same digester and spot welded in place. In this way, both samples were cooked in the same manner.

When the 13- to 14-hour cook was completed, the pulps were washed thoroughly with cold water and pressed. Petroleum ether and carbon tetrachloride extractions were made of all the pulps. Three hundred grams (moisture-free basis) of the pulp were added to the 1.5-pound Valley laboratory beater, and standard pitch evaluations were made. All runs were made in duplicate, and the average results are recorded in Table II.

Experimental Chip Aerations

The effect of aerating green spruce chips was investigated by means of four runs, which may be described briefly as follows: (*a*) Green spruce chips aerated for 8 hours; (*b*) partly seasoned spruce chips aerated for 8 hours; (*c*) green spruce chips aerated for 8 hours; these pulps, however, were washed with hot water instead of cold, and some of the pitch may have been lost; (*d*) green spruce chips aerated for 4 hours to determine the effects of a shorter treatment.

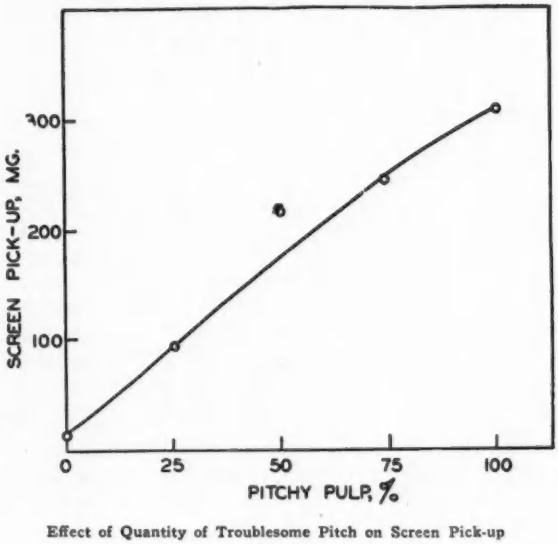
In order to determine the effects of aeration on a more resinous wood, three runs were made with jack pine chips. All were aerated for 8 hours. Since the cooking conditions in the mill digester were very mild for pine, it was necessary to recook some of the chips. (*e*) Green jack pine chips cooked twice, thus producing relatively soft and somewhat degraded pulps *(f)* green jack pine chips cooked once; the resulting pulps were very raw with little pitch and many uncooked chips; (*g*) seasoned jack pine chips cooked twice; this log had been cut for 2 years.

The analytical results of these seven aerations are summarized in Table II.

Discussion of the Analytical Results

Moisture. One of the most obvious effects of the aeration was a decrease in the moisture content of the chips. The degree of drying varied considerably in the seven runs, and it is evident that there is no correlation between the initial chip moisture and the percentage decrease produced by the aeration. From chip weighings made during the aerations and from the temperature readings, it is estimated that approximately ⅔ of the drying occurred in the first 4 hours. In mill operation, this drying effect would be of value, in that dilution of the cooking liquor would be reduced.

Chip extractives. These analyses were made to determine what portions of the resinous components



Effect of Quantity of Troublesome Pitch on Screen Pick-up
FIG. 3

TABLE II.—ANALYTICAL RESULTS FOR THE AERATED CHIPS

	Chip Extractives						Pulp Extractives	
	Moisture Content of Chips, %	Ether, %	Petroleum Ether, %	Methylene Chloride, %	Alcohol, %	Carbon Tetrachloride, %	Pitch Pick up, mg.	Petroleum Ether, %	Carbon Tetrachloride, %
a. Green spruce, aerated	38.9	0.75	0.67	1.76	1.81	2.07	119.7	1.92	1.19
	37.1	0.73	1.03	1.59	2.12	2.05	38.3	1.11	1.02
b. Seasoned spruce, aerated	32.1	0.82	1.14	1.13	1.73	1.62	15.2	1.67	0.89
	22.0	0.82	1.24	1.40	1.71	1.84	16.9	1.28	0.63
c. Green spruce, aerated	53.7	0.73	1.20	1.09	1.42	...	98.3	1.48	1.68
	49.7	0.56	1.29	1.17	1.41	...	63.0	1.10	1.02
d. Green spruce, aerated	48.2	...	...	...	...	...	39.5	0.70	1.01
	45.7	...	...	...	...	...	34.8	0.53	1.30
e. Green jack pine, aerated	46.2	2.80	2.00	3.87	5.52	2.50	535.5	2.66	2.67
	43.5	2.23	1.61	2.64	5.57	1.78	253.2	1.29	1.60
f. Green jack pine, aerated	46.1	2.94	1.41	2.39	3.62	2.50	67.8	2.38	1.95
	41.6	2.84	1.30	3.11	3.72	2.67	59.5	2.24	1.53
g. Seasoned jack pine, aerated	15.9	...	...	...	...	...	55.0	2.30	0.89
	9.3	...	...	...	...	...	55.8	2.03	0.63

were affected by the aeration. It is difficult, however, to draw any reliable conclusions from these results, because such wide differences existed between the pitch compositions of the various sticks. A few general observations may be made regarding the effect of aeration on spruce pitch. It appears that both the ether and the alcohol extracts remained fairly constant; on the other hand, the petroleum ether extract increased slightly. Jack pine behaved somewhat differently; it was apparent that the ether and petroleum ether extracts decreased, whereas the alcohol-soluble fraction increased slightly. Kress and Laughlin have observed the same changes in jack pine extractives after aeration; Richter obtained similar results in natural aging.

Pitch stickiness. The effectiveness of this aeration in reducing the stickiness of the pitch was studied by the screen test.

(a) The pitch deposited by this pulp from green spruce chips was decreased 68%. Although it is impossible to draw a sharp dividing line between the deposits from normal and troublesome pulps, it is probable that pulp made from the aerated chips could be run over a paper machine with little pitch trouble.

(b) This wood was sufficiently seasoned so that neither the untreated nor the aerated pulps would cause much trouble in processing. Although the pulp from the aerated chips actually picked up more pitch than did the blank, the difference between the two is so small that it is inconsequential.

(c) In this experiment, the pitch deposit was reduced about 36%. The difference might have been even greater had it not been for the fact that the pulps were washed with hot water, and much of the pitch was probably lost.

(d) The data show that this 4-hour aeration reduced the deposit somewhat, but the pitchiness in both cases was so low that it is difficult to evaluate this shortened treatment fairly.

(e) Jack pine is so much more resinous than spruce, from the standpoint of its tacky characteristic, that the heavy deposits obtained are not surprising. Even though the pulp from the aerated chips would probably still cause severe pitch troubles on the paper machine, the benefits of the aeration are indicated.

(f) This was such a raw cook that much of the pitch remained inside the uncooked chips. Aeration had a beneficial effect but the pulp, as used in the screen test, was too raw for paper-machine processing and, therefore, the results are hardly significant.

(g) The jack pine was so well seasoned that, even after the drastic effects of two cooks, it would not have caused much pitch trouble. The screen deposits indicate that the aeration had little effect on the stickiness of the well aged pitch.

Pulp extractives. Because the petroleum ether and carbon tetrachloride extracts of pulps are used by some mills as a rough index of the pitchiness of a pulp, the extractions were made on both pulps. As the data indicate, the solubility of pitch in these two solvents was reduced in every case except one by the aeration. This decrease is especially surprising in the case of seasoned jack pine.

Conclusions

From the experimental data obtained in this study, the following conclusions can be drawn:

The determination of the adhesiveness of a pitch by contact angle measurements does not give a reliable forecast of behavior of a pulp on a paper machine.

The proposed method of pitch determination by collecting the pitch on rotating screens appears to be a reliable method for evaluating a pulp for potential pitch trouble.

The accelerated seasoning of wood chips was accompanied by a drop in the moisture content of the chips. In mill operation, this drying effect would be of value from the standpoint of maintaining the strength of the cooking acid, because dilution caused by the water in the chips is reduced; further, a saving in steam is secured.

In the aeration of the chips, the air temperature dropped to as low as 7 to 8° C. because of the evaporation of the water. Therefore, there is probably no danger of fire as a result of the heat generated by the accelerated seasoning.

Extractions of the pulps from both untreated and treated chips showed that the petroleum ether and carbon tetrachloride solubilities were decreased by the aeration.

Although the experimental data obtained in this study are very promising, a great deal of work remains to be done before a truly reliable evaluation of this aeration procedure can be made.

Literature Cited

1. Kress, O., and Moss., L. A., *Paper Trade J.* 102, No. 25: 38-49 (June 18, 1936); *Tech. Assoc. Papers* 19: 186-197 (1936).
2. Ragan, R. O., and Kress, O., *Paper Trade J.* 109, No. 2: 35-37 (July 13, 1939); *Tech. Assoc. Papers* 22: 158-160 (1939).
3. Phillips, J. B., *Pulp Paper Mag. Can.* 31: 211-219 (1931).
4. Potter, G. J. C., *Paper Ind.* 12: 90-92 (1930-31).
5. Edge, S. R. H., *World's Paper Trade Rev.* 102: 1184, 1186, 1188, 1230-1232, 1262, 1264, 1300, 1346 (1934).
6. Green, H., *Paper Trade J.* 114, No. 6: 39-42 (Feb. 5, 1942); *Tech. Assoc. Papers* 25: 277-280 (1942).
7. Sieber, R., "Über das Harz der Nadelhölzer und die Entharzung von Zellstoffen." 2. Aufl. Berlin, Hofmann, 1925. 165 p.
8. Schwalbe, C. G., *Paper* 15, No. 1: 15-17 (Sept. 16, 1914).
9. Hibbert, H., and Phillips, J. B., *Can. J. Research* 4: 1-34 (1931).
10. Richter, E., *Wochbl. Papierfabr.* 44: 2486-2490 (1913); *Paper* 12, No. 10: 17-19, 34 (Aug. 20, 1913).
11. Kress, O., and Laughlin, E. R., *Paper Trade J.* 93, No. 8: 37-39 (Aug. 20, 1931).
12. Huntington, A. K., *Trans. Faraday Soc.* 1: 345-355 (1905).

Week's Record of Trends in The Paper and Pulp Market

Office of the PAPER TRADE JOURNAL, Wednesday, June 26, 1946.

Speculative buying and order duplication are currently spurring demand for paper beyond actual needs. Despite record paper output during the past six months, demand continues to outstrip supply. E. W. Tinker, executive secretary of the American Paper and Pulp Association, urges caution in the placement of orders for paper by pointing out that paper output currently is running 40 per cent above prewar and that sooner than most users expect the industry might find itself once more back in its normal position with capacity 17 to 42 per cent over demand. Much of the current high rate of paper consumption is due to the high rate of activity in the non-durable goods fields. Present demands for paper may suddenly drop once durable goods production gets into full swing and begins to drain a substantial amount of purchasing power away from non-durable products.

While the ability of the paper industry to produce at a record pace with its present equipment is generally accepted by the trade, there is doubt as to whether sufficient raw materials, pulp and waste paper, will be available the year round to match such a pace. It is true that the raw material situation has improved of late, but some mills are still unable to obtain the particular type of pulp they use and face the danger of closing. In addition, difficulties have been reported because of the shortages in starch, resin, casein, white clay and silicate of soda.

The paper shortage is perhaps best illustrated by the uneven supplies of different types and grades of paper. Reported as especially short are book papers, boxboard which has been affected by the accelerated gypsum paper liner program, jute and kraft liner paper.

The index of general business activity for the week ended June 15 rose to 131.6 from 125.9 in the previous week, compared with 141.6 for the corresponding week in 1945. The index of paperboard production fell to 164.8 from 167.9 in the previous week, compared with 162.7 for the corresponding week in 1945.

Paper production for the week ended June 15 was estimated at 104.0 per cent, compared with 104.0 for the preceding week, with 91.5 for the corresponding week in 1945, with 91.5 for 1944, with 87.0 for 1943, and with 86.5 per cent for the corresponding week in 1942.

Paperboard production for the week ended June 15 was 98.0 per cent of capacity, compared with 96.0 per cent for the preceding week, with 93.0 for the corresponding week in 1945, with 95.0 for 1944, with 95.0 for 1943, and with 69.0 per cent for the corresponding week in 1942.

Wood Pulp

Domestic mills held inventories totaling 538,000 tons on April 1, compared with 389,000 as of November 1. Such a large gain is due mainly to overseas pulp imports, including Canadian shipments. Stocks of imported wood pulp as of April 1 were 390,000 tons against 208,000 tons on November 1, a gain of over 182,000 tons, while the stock of domestic pulp was 148,000, a gain of only 17,000 tons.

Overseas imports of wood pulp for the calendar year to May 29, continue to show a very heavy preponderance of unbleached pulp. The total to May 29 of Swedish and Finnish pulp is 216,741 tons of which 54 per cent was kraft, 34 per cent unbleached sulphite and only 6 per cent bleached sulphite, bleached kraft, and high Alpha dissolving pulp for rayon, plastics, etc. It is an even lower ratio than the bleached imports from overseas last year. Domestic production has partially made up this deficit, and bleached pulp imports from Canada are showing some improvement. There is still a need for greater capacity in this field.

Rags

Old cotton rags are changing hands at ceiling prices for classification types, with some deals not involving heavy wipers at the usual $55 per ton. Dark cottons are taken at $70 or more, ex dock. Demand for new cotton cuttings remains very heavy. Roofing rags are steady at less than asking prices of $75 to $80.

Old Rope and Bagging

Market for old rope is unchanged. Ready sale of any good sisal or manila rope is possible. Ceiling prices are still met, 4.75 for sisal and 5.75 for manila. Small sisal brings 4c, and hard jute ropes have sold at 3.75 to 4c, but soft jutes hold at 5 to 5.25c.

Market trend is slightly easier in bagging. Purchases have been made at $4.25 delivered at mills, bagging that a few weeks back commanded $4.50; some consumers now offer no more than $4 delivered. In the South mixed bagging is reported at $3.50 shipping point in carload lots. Northern dealers pay $3.50 to $3.75 shipping point for good scrap bagging. Gunny ranges from $3.75 to $3.90.

Waste Paper

Inventories are believed to have reached 400,000 tons on June 1, despite some falling off in actual mill receipts during May. The waste paper was available, but it is believed a lot of it may have backed up at packers' warehouses or other points of accumulation as mills curtailed by the coal shortage reduced consumption and ordered deliveries by suppliers cut down.

Demand for old corrugated containers has picked up materially and long distance deliveries are being made at high rates. Book stock is plentiful, although top quality is short. The keen interest in all high grade waste paper is in evidence when printers offer $50 to $55 for very small lots of mixed white shavings from which hard whites and soft whites can be sorted.

Paper and Paper Stock Imports At New York and Other Ports

NEW YORK IMPORTS

WEEK ENDING JUNE 22, 1946

SUMMARY

Newsprint	8,736 rolls
Printing Paper	2 cs.
Filter Paper	15 cs.
Writing Paper	3 cs.
Miscellaneous Paper	3 rolls, 2 cs.

NEWSPRINT

H. G. Craig Co., Newscarrier, Donnacona, Que., 361 rolls.

International Paper Co., International No. 1, Gatineau, Que., 312 rolls.

H. G. Craig Co., G.T.D. Donnacona, Que., 353 rolls.

News Syndicate Co., Colabee, Baie Comeau, Que., 7312 rolls.

H. G. Craig Co., Kermic, Donnacona, 398 rolls.

PRINTING PAPER

S. H. Pomerance Co., Valacia, London, 1 cs.

H. Reeve, Angel & Co., Inc., Valacia, London, 15 cs.

FILTER PAPER

H. Reeve, Angel & Co., Inc., Valacia, London, 1 cs.

WRITING PAPER

Tiffany & Co., Hibbing Victory, Liverpool, 3 cs.

MISCELLANEOUS PAPER

Stora Kopparberg Corp., Drottningholm, Gothenburg, 3 rolls.

Winsor Newton, Inc., Valacia, London, 2 cs.

RAGS, BAGGINGS, ETC.

E. Butterworth & Co., Inc., Hibbing Victory, Liverpool, 78 bls. bagging.

J. Eisenberg, Inc., Hibbing Victory, Liverpool, 33 bls. new wool rags; 6 bls. wool waste.

Camden Fibre Mills, Marine Arrow, Bombay, 150 bls. cotton waste.
Brandwein Mazur Co., Marine Arrow, Bombay, 200 bls. cotton waste.
C. Kutz, Marine Arrow, Bombay, 100 bls. cotton waste.
Green Textile Associates, Marine Arrow, Bombay, 200 bls. cotton waste.
O'Brien Products, Inc., Marine Arrow, Bombay, 505 bls. cotton waste.
Empire Fabrics Co., Marine Arrow, Bombay, 46 bls. cotton waste.
Buffalo Batt & Felt Corp., Marine Arrow, Bombay, 200 bls. cotton waste.
Riverside Mills, Marine Arrow, Bombay, 310 bls. cotton waste.
S. H. Waldestein Co., Marine Arrow, Bombay, 110 bls. cotton waste.
Padawer & Co., Marine Arrow, Bombay, 350 bls. cotton waste.
New England Waste Co., Marine Arrow, Bombay, 2043 bls. cotton waste.
Atlas Waste Manfg. Co., Mormacdale, Buenos Aires, 10 bls. woolen rags; 12 bls. woolen thread waste.
New England Waste Co., Mormacdale, Buenos Aires, 55 bls. cotton picker waste.
Americale Trading Co., Inc., Mormacdale, Buenos Aires, 47 bls. old woolen rags.
(———), Egidia, Glasgow, 94 bls. bagging; 37 bls. paperstock.
New England Waste Co., City of Windsor, Tuticorin, 2500 bls. cotton waste.
Schimmel Trading Corp., City of Windsor, Cochin, 100 bls. cotton waste.
C. Kutz, Seton Hall Victory, Rio de Janeiro, 90 bls. cotton waste.
American Cotton Products Co., Seton Hall Victory, Rio de Janeiro, 220 bls. cotton waste.
New England Waste Co., Rio Bermejo, Buenos Aires, 417 bls. cotton waste.
Simmons Co., Rio Bermejo, Buenos Aires, 1194 bls. cotton waste.
Tradesmans National Bank Trust Co., Valacia, London, 108 bls. paperstock.
Manufacturers Trust Co., Valacia, London, 5 bls. wool rags.
Textile & Paper Supply Corp., Cape Alava, Genoa, 163 bls. dark cotton rags.

OLD ROPE

National City Bank, Valacia, London, 125 coils.

HIDECUTTINGS, ETC.

Atlantic Gelatin Co., Inc., Hibbing Victory, Liverpool, 133 bags dry hide cuttings.
H. Remus, Coastal Stevedore, Trujillo City, 178 bdls., 127 bls. dry fleshings.
Transatlantic Animal ByProducts, Inc., Seton Hall Victory, Santos, 800 bags sheet bone glue.
A. Bloch Co., Cape Alava, Genoa, 40 bls., 112 bags hide cuttings.

CASEIN

Hercules Powder Corp., Bessemer City, Buenos Aires, 4000 bags.
1st of Boston International Corp., Bessemer City, Buenos Aires, 1000 bags.
F. H. Paul & Stein Bros., Mormacdale, Buenos Aires, 400 bags, 20,200 kilos.
Sherwin Williams Co., Rio Bermejo, Buenos Aires, 1000 bags, 50,000 kilos.
American Cyanamid & Chemical Corp., Rio Bermejo, Buenos Aires, 7620 bags, 381,021 kilos.
Tupman Thurlow Co., Inc., Rio Bermejo, Buenos Aires, 2000 bags, 100,000 kilos.

ALBANY IMPORTS

WEEK ENDING JUNE 15, 1946

SUMMARY

Pagel Horton & Co., Inc., Rider Victory, Gefle, 7874 bls. dry unbleached woodpulp, 1574 tons; 5000 bls. dry sulphate woodpulp, 507 tons.
Tradesmans National Bank Trust Co., Rider Victory, Gefle, 750 bls. dry sulphate woodpulp, 165 tons.
Cellulose Sales Co., Inc., Rider Victory, Obbola, 3500 bls. dry sulphate woodpulp, 492 tons.
Pagel Horton & Co., Inc., Rider Victory, Hornefors, 3048 bls. dry sulphite woodpulp, 500 tons.
Pagel Horton & Co., Inc., Rider Victory, Husum, 12,192 bls. dry sulphate woodpulp, 2032 tons.

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, June 26, 1946.

BLANC FIXE—Market remains active. The pulp is currently quoted at $40 per ton, in barrels, at works; the powder is currently quoted at $60 per ton, f. o. b. works.

BLEACHING POWDER—Demand continues very heavy. Supply situation is reported favorable although containers are hard to get. Quotations are unchanged. Prices on bleaching powder range from $2.50 to $3.10 per 100 pounds, in drums, car lots at works.

CASEIN—OPA maximum prices on processed acid-precipitated casein are as follows: 10,000 pounds or more, 33 cents per pound; 2,000 pounds 33¼ cents per pound; less than 2,000 pounds, 33¾ cents per pound, f. o. b. shipping point. Imported, 33 cents per pound.

CAUSTIC SODA—Very active demand reported. Cutback production reduces stocks. Market tight with demand above output. Solid caustic soda is quoted at $2.30 per 100 pounds; flaked and ground is quoted at $2.70 to $2.95 per 100 pounds.

CHINA CLAY—Demand remains fair to good. Quotations remain unchanged. Supply good. Domestic filler clay is currently quoted at from $8.50 to $9 per ton; coating clay is quoted at from $12 to $22 per ton, at mine. Imported clay, is quoted at from $22 to $25 per long ton, ship side.

CHLORINE—Strong demand in a tight market with inventories lowered. Quotations unchanged. Chlorine is currently quoted at $2.00 to $2.25 per 100 pounds, in single unit tank cars, f. o. b. works.

ROSIN—Demand steadily increasing. "G" gum rosin is quoted at $6.74 per 100 pounds, in barrels, at Savannah; "FF" rosin at $6.70 per 100 pounds, in barrels, at New York; seventy percent gum rosin size at $6.95 per 100 pounds, f.o.b. works.

SALT CAKE—Reported heavy demand is currently keeping inventories low. Prices remain unchanged. Domestic salt cake is quoted at $15 per ton, in bulk. Chrome salt cake is quoted at $16 per ton. All prices in car lots, f.o.b. shipping point.

SODA ASH—Over-all demand continues very heavy. Market remains tight with demand above output. Orders allocated to equalize distribution. Quotations continue unchanged. Current prices, car lots, per 100 pounds, are as follows: in bulk, $.95; in paper bags, $1.05; and in barrels $1.35.

STARCH—Market tight with demand exceeding supplies. Previous orders filled. Starch prices continue unchanged. The pearl grade is quoted at $3.72 per 100 pounds; powdered starch at $3.83 per 100 pounds; all prices in bags; car lots, f.o.b. Chicago.

SULPHATE OF ALUMINA—Supply situation good with demand reported active. Quotations continue unchanged. The commercial grades are quoted at from $1.15 to $1.35 per 100 pounds, in bags, car lots, f.o.b. works. The iron free is currently quoted at $1.75 to $2.00 per 100 pounds, in bags, at works.

SULPHUR—Quotations on sulphur continue to conform to prevailing market prices. Demand moderate. Annual contracts are quoted at $16 per long ton, f.o.b. mines; the price at Gulf Ports is $17.50 per long ton.

TALC—Prices on talc continue unchanged. Demand steady. Domestic grades are currently quoted at from $16 to $30 per ton at mines; Canadian at $24 to $30 per ton. All prices in car lots.

MARKET QUOTATIONS

All market quotations, excepting those otherwise designated as official OPA maximum prices, are based on the manufacturers' price level as of October 1-15, 1941; maximum wholesale prices are based on the merchants' maximum prices for stipulated quantities at a quoted price to all customers of a like class, as shown by the merchant's sales records of goods delivered during March, 1942. A merchant's price list in effect in March 1942, showing quotations of actual shipments, will establish the current maximum prices.

Paper

(Delivered New York)

Standard News, per ton—
Roll, contract ..*$67.00 @ —
Sheets ..... 75.00 @ —
* OPA Maximum Price.

Kraft—per cwt.—Carload Quantities Zone A, Delivered
Superstandard Wrapping .....*$5.25 @ —
No. 1 Wrapping.. *5.00 " —
Standard Wrapping*4.75 " —
Standard Bag.....*4.375 " —
* OPA Manufacturers' Prices.

Tissues—Per Ream—Carlots
White No. 1..... 1.12½ " —
White No. 1 M. G. 1.10 " —
White No. 1½ .... 1.00 " —
White No. 2..... .90 " —
Anti-Tarnish M.F.. 1.20 " —
Colored ..... — " —
Kraft ..... .95 " —
Manila ..... .90 " —

Toilet—1 M. Sheets—Per Case
Unbleached ..... 4.25 " —
Bleached ..... 5.70 " —
Unbl. Toilet, 1 M.. 4.16 " —
Bleached Toilet.... 5.70 " —

Paper Towels, Per Case—
Unbleached, Jr. ... 2.20 " —
Bleached, Jr. ..... 3.20 " —

Manila—per cwt.—C. l. f. a.
No. 1 Jute .....11.25 @ —
No. 1 Manila 35 lb. 6.00 " 7.00

Boards, per ton—
News .....*54.00 @ —
Chip .....*54.00 @ —
Sgl. Mla. Ll. Chip*65.00 @ —
White Pat. Coated*79.00 @ —
Kraft Liners 50 lb.*74.00 " —
Binders Boards ...84.00 " 116.00

* OPA Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items
Delivered in Zone 1:

	Bonds	Ledgers
100% Rag Ext. No. 1	$39.10@$46.00	$40.25@$47.25
100% Rag	32.20 " 37.75	33.35 " 39.25
85% Rag	.... "	29.90 " 35.00
75% Rag	23.00 " 27.00	24.15 " 28.25
65% Rag	.... "	22.80 " 27.75
50% Rag	18.70 " 22.75	19.90 " 24.25
25% Rag	16.40 " 20.00	17.55 " 21.50

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items
Delivered in Zone 1:

	Bonds	Ledgers
No. 1	$10.55@$12.75	$11.70@$14.25
No. 2	9.65 " 11.75	10.80 " 13.25
No. 3	9.20 " 11.25	10.35 " 12.50
No. 4	8.90 " 10.75	10.05 " 12.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper
Delivered in Zone 1:
No. 1 Glossy Coated...$13.65@$15.5
No. 2 Glossy Coated... 12.40 " 14.0
No. 3 Glossy Coated... 11.60 " 13.2
No. 4 Glossy Coated... 11.15 " 12.7
No. 1 Antique (watermarked) ..... 10.25 " 11.7
No. 2 Offset ..... 9.60 " 11.0
A Grade E. F..... 9.35 " 10.7
A Grade S. & S. C.... 9.60 " 11.0
B Grade E. F..... 8.85 " 10.2
B Grade S. C..... 9.10 " 10.5
C Grade E. F..... 8.55 " 9.7
C Grade S. C..... 8.80 " 10.0
D Grade E. F..... 8.25 " 9.5
D Grade S. & S. C.... 8.50 " 9.7
Ivory & India at $.50 cwt. extra.

Wood Pulp

OPA Maximum Prices and Canadian Manufacturers' Prices, Less Freight Not Exceeding OPA Allowances.

Bl. Softwood Sulphite.....	$94.00
Unbl. Softwood Sulphite.....	82.00
Bl. Hardwood Sulphite.....	91.50
Unbl. Hardwood Sulphite.....	79.50
Bl. Glassine Sulphite	97.00
Unbl. Glassine Sulphite	86.00
N. Bleached Sulphate.....	94.00
S. Bleached Sulphate.....	88.00
N. Semi-Bleached Sulphate...	89.00
S. Semi-Bleached Sulphate...	83.00
N. Unbl. Sulphate.....	76.00
S. Unbl. Sulphate.....	69.50
Bl. Soda	84.00
Unbl. Soda	80.00
Groundwood	58.00

Transportation Allowances

Applying to Producers of Wet Wood Pulp.

	Below 50% Air Dry Weight
Northeast	$12.50
Lake Central	12.50
Southern	15.00
West Coast (in area)	9.50
West Coast (out area).....	15.50

	50%-80% Air Dry Weight
Northeast	$10.50
Lake Central	10.50
Southern	13.00
West Coast (in area)	8.50
West Coast (out area)	14.50

Applying to Producers of Dry Wood Pulp.

	Above 80% Air Dry Weight
Northeast	$7.50
Lake Central	7.50
Southern	10.00
West Coast (in area)	6.50
West Coast (out area)	12.50

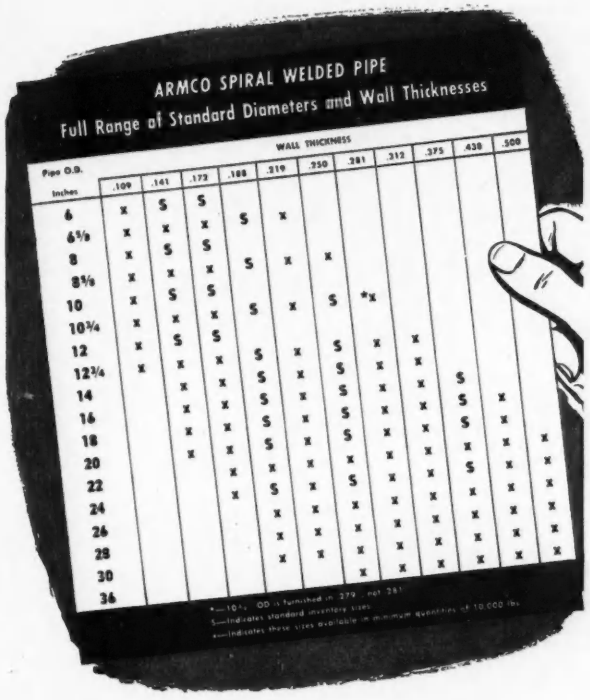
Should freight charges actually exceed these allowances, the difference may be added to the maximum price.

Domestic Rags

New Rags
(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1.	6.50	@ 7.25*
Silesias No. 1.....	—	" 5.75*
New Unbleached .	6.75	" 7.50*
Blue Overall	—	" 5.50*
Fancy	—	" 3.50*
Washables	—	" 3.00*
Bleached Khaki Cuttings	—	" 4.25*
Unbleached Khaki Cuttings	—	" 3.50*

* OPA Maximum Prices.



CHECK THIS SIZE-RANGE OF ARMCO STEEL PIPE

Paper mill men who use ARMCO Spiral Welded Steel Pipe know its important advantages in plant piping and water supply lines.

They get a wide selection of sizes and wall thicknesses—with special prefabricated fittings of all kinds. ARMCO Steel Pipe is easy to install, cleans readily, has high flow capacity, and provides less chance for leaks. Various coatings and wrapped pipe are optional.

For more data on this money-saving pipe, write Armco Drainage & Metal Products, Inc., Welded Pipe Sales Division, 3475 Curtis Street, Middletown, Ohio.

ARMCO

ARMCO STEEL PIPE

Old Rags

White, No. 1—			
Repacked	*3.88	@	—
Miscellaneous	*3.20	"	—
White, No. 2—			
Repacked	*2.90	"	—
Miscellaneous	*2.65	"	—
Thirds and Blues—			
Repacked	*2.20	"	—
Miscellaneous	*1.30	"	—
Roofing Rags—			
No. 1	*1.55	"	—
No. 2	*1.45	"	—
No. 3 (bagging)	*1.35	"	—
No. 4	*1.35	"	—
No. 5A	*1.35	"	—
Old Manila Rope	5.75	"	—

* OPA Maximum Prices.

Foreign Rags

Pre-War Quotations

All Prices Nominal

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxfords	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—
No. 4 White Linens	2.25	"	3.25
No. 1 White Cotton	4.25	"	4.75
No. 2 White Cotton	3.25	"	3.75
No. 3 White Cotton	2.50	"	3.00
No. 4 White Cotton	1.90	"	2.20
Extra Light Prints	2.00	"	2.40
Ord. Light Prints	1.75	"	2.15
Med. Light Prints	1.55	"	1.95
Dutch Blue Gottons	2.25	"	2.50
French Blue Linens	3.00	"	—
Checks and Blues	2.00	"	—
Linsey Garments	1.90	"	2.00
Dark Cottons	1.50	"	1.60
Old Shopperies	1.30	"	1.45
New Shopperies	1.45	"	1.50
French Blues	2.25	"	2.50

BAGGING

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	3.25	@	3.30
Wool Tares, light	3.25	"	3.50
Wool Tares, heavy	3.50	"	3.75
Bright Bagging	3.25	"	3.50
Manila Rope—			
Foreign	—	"	—
Domestic	*5.75	"	—
Jute Threads	5.50	"	—
No. 1 Sisal Strings	*4.00	"	—
Mixed Strings	1.50	"	—

* OPA Maximum Prices.

Old Waste Papers

(F. o. b. New York)

OPA Maximum Prices, Baled

No. 1 Hard White Envelope Cuts, one cut	3.37½	@	—
No. 1 Hard White Envelope Cuts	3.12½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, one cut	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Mixed Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
Mixed Groundwood Colored Shavings	.90	"	—
Overissue Magazines	1.67½	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
Mixed Books	1.10	"	—
No. 1 White Ledger	2.30	"	—
No. 2 Mixed Ledger, colored	2.00	"	—
New Manila Envelope Cuttings, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
Extra Manilas	1.95	"	—
Mixed Kraft, Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
Triple Sorted, No. 1 Brown Soft Kraft	2.50	"	—
New 100% Kraft Corrugated Cuttings	2.25	"	—
No. 1 Assorted Old Kraft	1.75	"	—
New Jute Corrugated Cuttings	.90	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.40	"	—
Box Board Cuttings	.72½	"	—
White Blank News	1.65	"	—
Overissue News	1.10	"	—
No. 1 News	1.00	"	—
No. 1 Mixed Paper	.95	"	—
Old Corrugated Containers	.82¼	"	—
Mill Wrappers	1.10	"	—

Twines

All Prices Nominal

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.21	@	—
White Hemp	.21	"	—
Fine Polished—			
Fine India	.26	"	—
Unpolished—			
Box	.17¼	"	—
Paper Makers	.17	"	—
Tube Rope	.19	"	—
Wall Paper	.20½	"	—
Wrapping	.23	"	—
Soft Fiber Rope	.19	"	—
Cotton	.25	"	—
(Hard Fiber)			
Medium Java	.18	"	—
Mex. Sisal	.16	"	—
Manila	—	"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill)

Shirt Cuttings—	
New White No. 1	.07¼
New White No. 2	.05¾
Light Silesias	.05¾
Black Silesias, soft	.03¾
New Unbleached	.07½
Washable Prints	.04¼
Washable No. 1	.03
Blue Overall	.05½
Cottons—According to grades—	
Washable Shredding	.01¾
Fancy Percales	.04¾
New Black Soft	.03¼
Khaki Cuttings—	
Unbleachable Cotton Cuttings	.03½
Bleachable Cotton Cuttings	.04½
Men's Corduroy	.03½
Ladies' Corduroy	.03
Cottonades	.03¼

Domestic Rags (Old)

White No. 1—Repacked	3.80	@	—
Miscellaneous No. 1	3.20	"	—
Miscellaneous No. 2	2.65	"	—
White No. 2—Repacked	2.90	"	—
Thirds and Blues—			
Miscellaneous	1.80	"	—
Repacked	2.20	"	—
Black Stockings—			
(Export)	Nominal		
Roofing Stock—			
Foreign No. 1	Nominal		
Domestic No. 1	1.55	"	—
Domestic No. 2	1.45	"	—
Roofing Bagging	1.35	"	—
Old Manila Rope	5.75	"	—

Bagging

(F. o. b. Phila.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	3.00	@	3.50
No. 1 Clean Bright—Sisal Strings	.04	"	—
No. 2 Clean Bright—Sisal Strings	.03	"	—
Sisal Jute	.02½	"	.02¾
Scrap—			
No. 1	3.25	"	3.50
No. 2	1.75	"	1.80
Wool Tares, heavy	4.00	"	4.25
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.75	"	4.00

Old Papers

(F. o. b. Phila.)

OPA Maximum Prices, Baled

No. 1 Hard White Envelope Cuts, one cut	3.37½	@	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
Soft White Shavings, one cut	2.50	"	—
White Blank News	1.65	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White and Colored Tabulating Cards	2.25	"	—
Ground Wood Tabulating Cards	1.35	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.95	"	—
Overissue News	1.10	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.40	"	—
Jute Corrugated Cuttings	1.07½	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	2.75	@	2.90
Sisal Rope No. 1	*4.75	"	—
Sisal Rope No. 2	* —	"	4.00
Mixed Rope	1.60	"	—
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Manila Rope—			
Foreign	(nominal)		
Domestic	5.75	"	—
Soft Jute Rope	4.50	"	5.00
Jute Carpet Threads	3.00	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	3.00	"	3.25
South America	—	"	3.25

BOSTON

Old Papers

(F. o. b. Boston)

OPA Maximum Prices, Baled

No. 1 Hard White Shavings, unruled	2.87½	@	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White and Colored Tabulating Cards	2.25	"	—
Ground Wood Tabulating Cards	1.35	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.95	"	—
Overissue News	1.10	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.40	"	—
Jute Corrugated Cuttings	1.07½	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	2.75	@	2.90
Sisal Rope No. 1	*4.75	"	—
Sisal Rope No. 2	* —	"	4.00
Mixed Rope	1.60	"	—
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Manila Rope—			
Foreign	(nominal)		
Domestic	5.75	"	—
Soft Jute Rope	4.50	"	5.00
Jute Carpet Threads	3.00	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	3.00	"	3.25
South America	—	"	3.25
Wool Tares—			
Foreign	(nominal)		
Domestic	4.25	"	—
Aust. Wool Pouches	—	"	3.65
New Zealand Wool Pouches	—	"	3.50
New Burlap Cuttings	4.75	"	5.00
Heavy Baling Bagging	4.00	"	4.25
Paper Mill Bagging	2.50	"	3.00
No. 2 Roofing Bagging	1.35	"	—

* OPA Maximum Prices.

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.04½	@	.04¾
Fancy Percales	.04¾	"	.05
New White No. 1	.06¾	"	.07
New Light Flannelettes	.05½	"	.06
Canton Flannels, Bleached	.06	"	.06¼
Underwear Cutters, Bleached	.06¼	"	.06¾
Underwear Cutters, Unbleached	.05¾	"	.06
Silesias No. 1	.06	"	.06¾
New Black Silesias	.03	"	.03¾
Red Cotton Cuttings	.03½	"	.04
Soft Unbleached	.06½	"	.06¾
Blue Cheviots	.05½	"	.06
Fancy	.02¾	"	—
Washable	.02¾	"	—
Khaki Cuttings	.02¾	"	.03
O. D. Khaki	.03½	"	.03¾
Corduroy	.03¼	"	.03¾
New Canvas	.06¼	"	.06½
B. V. D. Cuttings	.06¼	"	.06½

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—			
Repacked	3.80	@	—*
Miscellaneous	3.20	"	—*
White No. 2—			
Miscellaneous	2.65	"	—*
Twos and Blues, Repacked	2.20	"	—*
Old Blue Overalls	2.25	"	2.50
Thirds and Blues, Repacked	2.20	"	—*
Miscellaneous	1.80	"	—*
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	1.55	"	—*
No. 2	1.45	"	—*
No. 3	1.35	"	—*
No. 4	1.35	"	—*
No. 5, Quality A	1.85	"	—*
Quality B	1.20	"	—*
Quality C	.95	"	—*
Old Manila Rope	5.75	"	—*

* OPA Maximum Prices.

Foreign Rags

(F. o. b. Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

CHICAGO

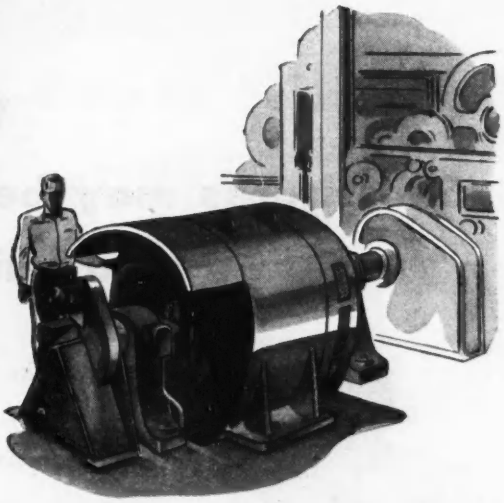
Waste Paper

(F. o. b. Chicago)

OPA Maximum Prices, Baled

Shavings—			
No. 1 Hard White Envelope Cuts, one cut	3.37½	@	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
No. 1 White Ledger	2.30	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
White Blank News	1.65	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
No. 1 Assorted Old Kraft	1.75	"	—
Overissue News	1.10	"	—
No. 1 News	1.00	"	—
No. 1 Mixed Paper	.95	"	—
No. 1 Roofing Rags	1.55	"	—
No. 1 Roofing Bags	1.45	"	—
Misc.	2.15	"	—
No. 1 White Ledger	2.30	"	—
No. 2 Ledger, colored	2.00	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
Overissue Magazines	1.67½	"	—
New Manila Envelope Cuttings	2.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.95	"	—
Box Board Cuttings	.72½	"	—
Kraft Corrugated Cuttings	2.25	"	—
Old Corrugated Containers	1.40	"	—
Overissue News	1.00	"	—
No. 1 News	1.00	"	—

"What! Stop a 30" Calender Roll in Less than 14" of Roll Travel!"



"**Right!** And besides that emergency stop, give us 10 to 1 speed range on the motor and hold speed *close*. The torque characteristic of our calender requires that the motor have high overload capacity at low speeds without overheating. And because of operating conditions, we want sparkless commutation too!"

B-b-u-t-t... "No buts" said Mr. Rubber Mill Man, "that's *exactly* what we need. You see, we're experimenting with new materials on our rolls, and since we can't *pre*-determine best roll speeds for them, we must have a drive that'll give us complete *range* of speeds, and at the same time, complete *protection* for our workers".

"**In A Nutshell,** you and the control engineers must design a calender drive system that'll give us *higher* and *lower* calender speeds, *closer* speed regulation and *sudden* emergency stopping — *all three!*" Well, we set up meetings between the control and motor designers to plan a *coordinated* design that would meet the needs.

An Automatic Speed Control incorporating both our m-g set and "Regulex" exciter was designed to hold selected speed within close limits. And, after a careful analysis of required load characteristics, we designed a 400 hp d-c motor of low inertia for quick stopping . . . and which also provided speed range from 25 to 250 rpm.

Remember That 14" Stop? After the system went in, we stopped the rolls first at 18" . . . easy. Then at 14" . . . at 12" . . . at 9"! And we probably would have stopped 'em even shorter but for possible danger of too sudden stops to the calender gear system. And commutation? After 6 months, the operators say it's perfect. A 2048

Moral: Every time Allis-Chalmers discovers new ways of solving *special* motor problems, like this one, it also learns how to build better *standard* motors for you! Watch for these new and better motors from A-C. ALLIS-CHALMERS, MILWAUKEE 1, WISCONSIN.

Wait 'til you see the NEW

ALLIS-CHALMERS MOTORS!

Substitutes may be okay in a ball game

But not in the production of *coated paper of high quality*—at the speed demanded by modern industry. For this purpose, you must use a *Calcium Carbonate of high quality.*

Wyandotte Precipitated Calcium Carbonate is unequaled—in brightness and freedom from grit and abrasiveness . . . in hiding power and ink absorption . . . in that uniformity which is essential to coating.

This superiority of Wyandotte Precipitated Calcium Carbonate is not the result of hurry or hit-and-miss methods. For years Wyandotte Chemicals Corporation has made a *business* of producing Precipitated Calcium Carbonate . . . steadily increasing its store of technical knowledge . . . constantly improving its expertness.

So it is that today Wyandotte is meeting the need of the paper industry with the very best in Precipitated Calcium Carbonate.

TECHNICAL BULLETINS ARE AVAILABLE UPON REQUEST

Wyandotte
Reg. U. S. Pat. Off.

WYANDOTTE CHEMICALS CORPORATION • **MICHIGAN ALKALI DIVISION** • Wyandotte, Michigan

Soda Ash • Caustic Soda • Bicarbonate of Soda • Calcium Carbonate • Calcium Chloride • Chlorine Hydrogen • Sodium Zincate • Aromatic Intermediates • Dry Ice • Other Organic and Inorganic Chemicals

How to Speed Piping Jobs in Pulp and Paper Mills

A lot of mills know how and are profiting by it. They know the time and trouble saved on every job by having Crane supply all materials: valves, fittings, pipe, fabricated piping, and accessories.

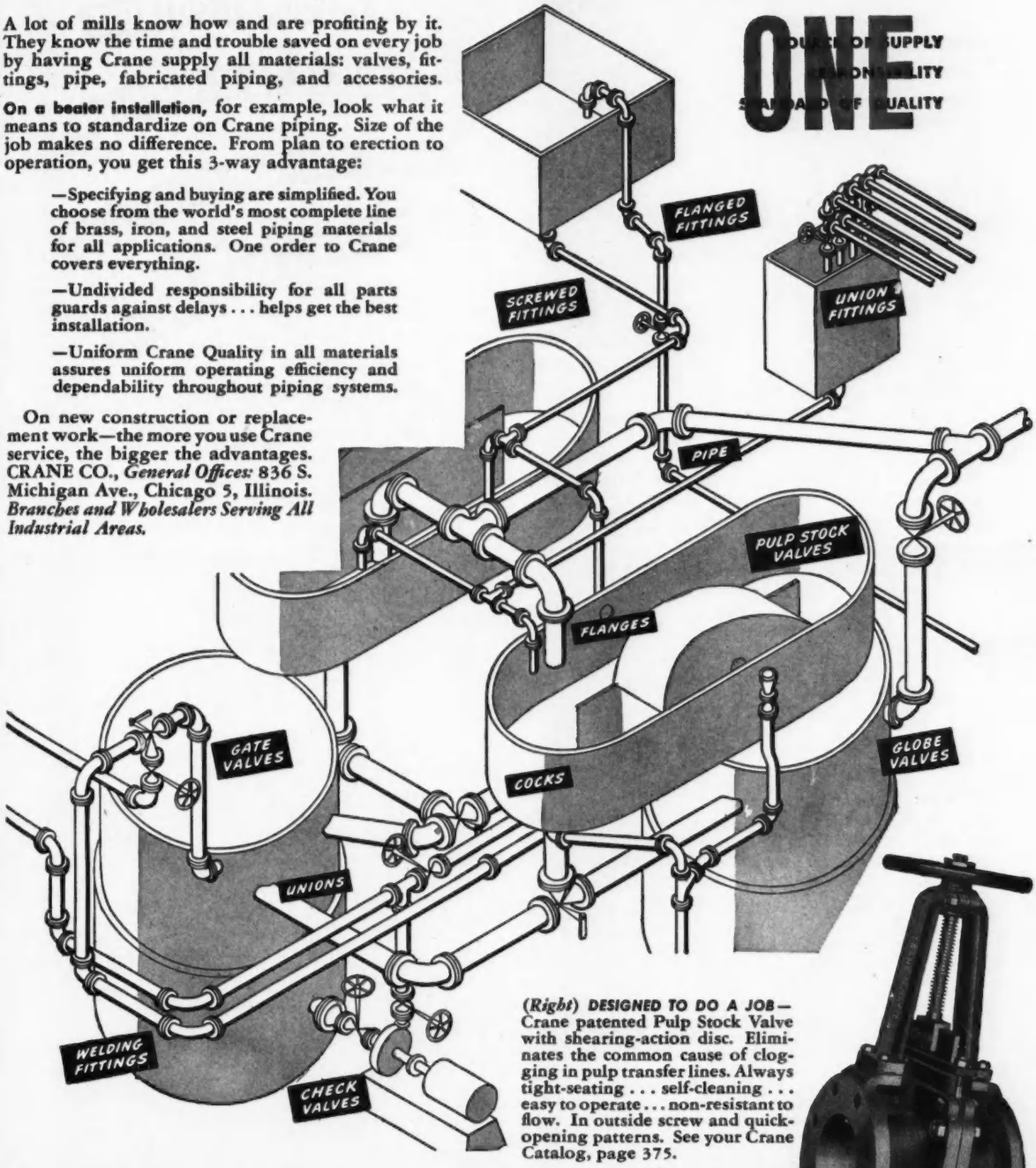
On a beater installation, for example, look what it means to standardize on Crane piping. Size of the job makes no difference. From plan to erection to operation, you get this 3-way advantage:

—Specifying and buying are simplified. You choose from the world's most complete line of brass, iron, and steel piping materials for all applications. One order to Crane covers everything.

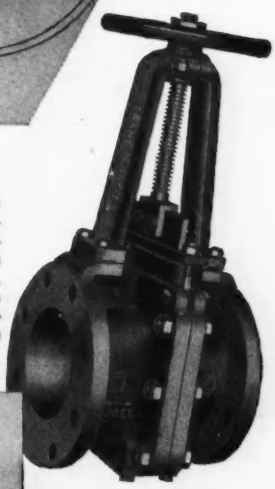
—Undivided responsibility for all parts guards against delays . . . helps get the best installation.

—Uniform Crane Quality in all materials assures uniform operating efficiency and dependability throughout piping systems.

On new construction or replacement work—the more you use Crane service, the bigger the advantages. CRANE CO., *General Offices:* 836 S. Michigan Ave., Chicago 5, Illinois. *Branches and Wholesalers Serving All Industrial Areas.*



(*Right*) **DESIGNED TO DO A JOB**—Crane patented Pulp Stock Valve with shearing-action disc. Eliminates the common cause of clogging in pulp transfer lines. Always tight-seating . . . self-cleaning . . . easy to operate . . . non-resistant to flow. In outside screw and quick-opening patterns. See your Crane Catalog, page 375.

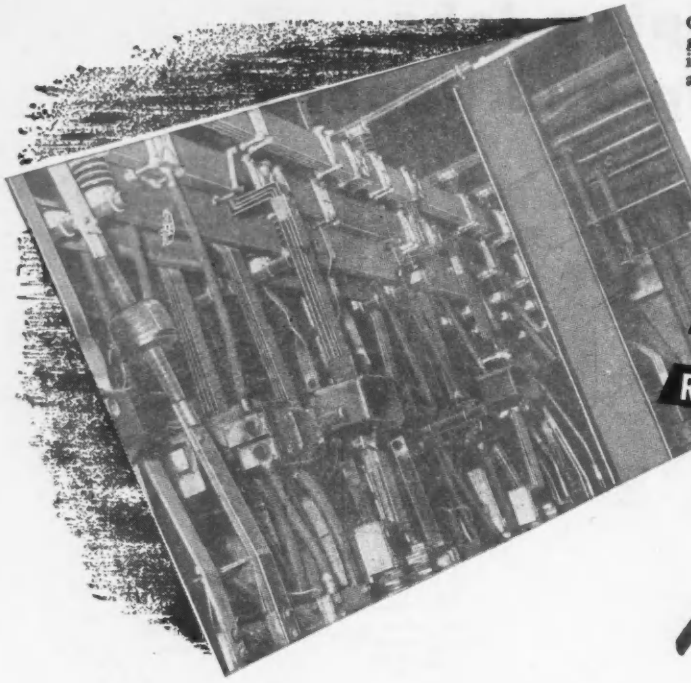


EVERYTHING FROM . . .

VALVES • FITTINGS
PIPE • PLUMBING
HEATING • PUMPS

CRANE

FOR EVERY PIPING SYSTEM



Obsolete, open-type switchboard construction, congested by additions made from time to time, resulted in a condition dangerous to operating continuity and to personnel.

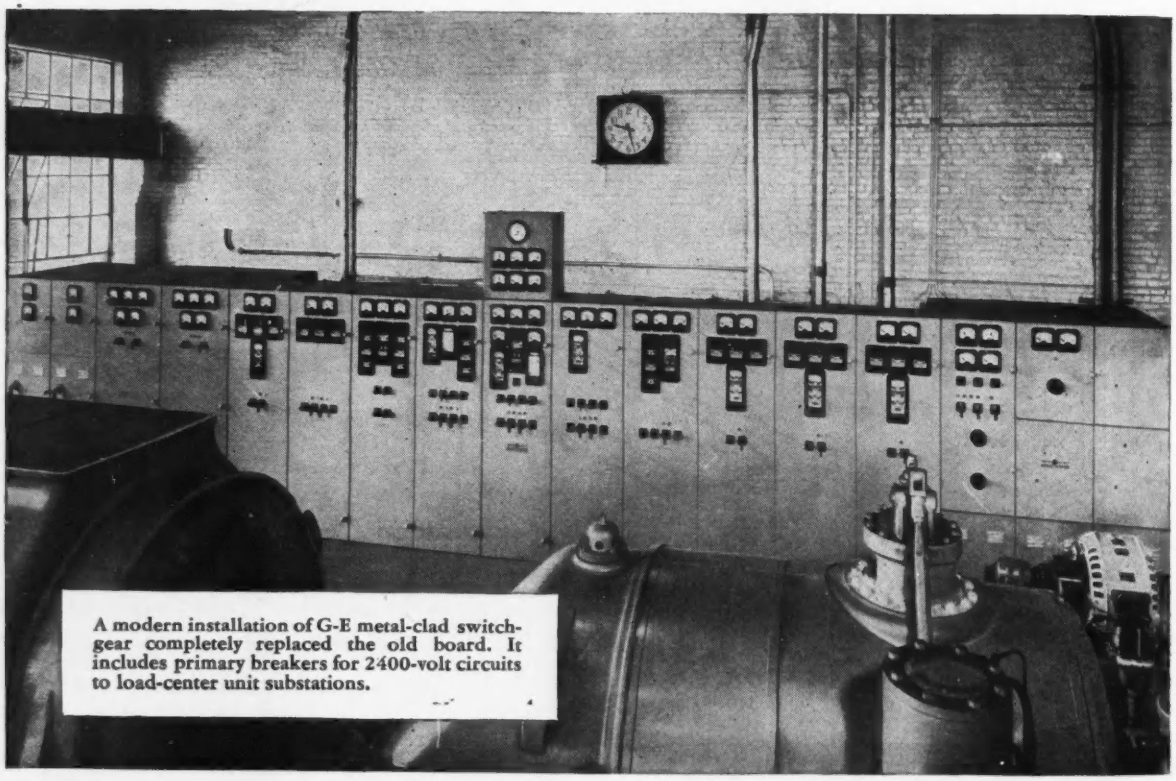
FREQUENT OUTAGES

DANGER TO PERSONNEL

POOR VOLTAGE CONDITIONS

RESTRICTIONS ON GROWTH

Removed



A modern installation of G-E metal-clad switchgear completely replaced the old board. It includes primary breakers for 2400-volt circuits to load-center unit substations.

GENERAL ELECTRIC

How to Get More out of Your Chemicals

By maintaining constant vigilance in manufacturing and shipping uniformly high quality chemicals, we have endeavored to serve the pulp and paper industry. You can always depend upon Hooker for the quality you want in pulp and paper chemicals.

Another way that Hooker has been helping pulp and paper makers is through the services of its Technical Staff. The close cooperation of Hooker chemists with pulp and paper makers is well known in the industry. The results of this relationship are found in the technical papers and bulletins Hooker has printed and offers to all those interested. These bulletins suggest the way to improved processes, greater economies and higher quality production for you.

They cover many phases of your operations and should be of value to your present operations as well as for your plans for expansion. Some of the Hooker bulletins of interest to the paper industry are listed below. Copies will be sent you when requested on your letterhead.

HOOKER BULLETINS

BULLETIN 201—*Process and Equipment for Making Bleach for Use Without Settling.*

BULLETIN 208—*Prevention of Suck-backs in Chlorine lines.*

BULLETIN 211—*Chemistry of Bleaching Chemical Wood Pulps.*

BULLETIN 234—*Lime-Chlorine System in Preparation of Calcium Hypochlorite.*

BULLETIN 236—*Importance of pH and Catalysts in Bleachery Operations.*

BULLETIN 241—*Bleaching Gumwood Sulfate Pulp.*

BULLETIN 242—*Production and Use of Unsettled Bleach Liquor.*

BULLETIN 243—*Procedures and Brightness Grades in Bleaching Sulfate Pulps.*

HOOKER ELECTROCHEMICAL COMPANY

6 Union St. NIAGARA FALLS, N. Y.

New York, N. Y. Wilmington, Calif. Tacoma, Wash.

Caustic Soda **Chlorine** **Muriatic Acid** **Sodium Sulfide**

HOOKER CHEMICALS

8434

The CLEARING HOUSE

HELP WANTED—5c a word. Double rate for heavy face type. Minimum charge $1.25.
SITUATIONS WANTED—5c a word, double rate for heavy face type. Minimum charge $1.25. If repeated ½ rate will be charged for each consecutive repetition.

FOR SALE—5c a word. Double rate for heavy face type. Minimum charge $1.25.
WANTED—5c a word. Double rate for heavy face type. Minimum charge $1.25.
OPPORTUNITIES—5c a word. Double rate for heavy face type. Minimum charge $1.25.
Classified advertising space may also be purchased at $3.00 per single column inch.

All classified advertisements are payable in advance. If box number is used—35 cents additional.
Address replies to advertisements appearing under Box numbers in care of
PAPER TRADE JOURNAL, 15 West 47th Street, New York 19, N. Y.

Copy for Classified Advertisements must be in our office on Monday preceding publication

HELP WANTED

MANAGER
REQUIRED FOR NEW
PACIFIC COAST
SULPHATE PULP MILL

An unusual opportunity is presented for a man with necessary technical experience to assume position of resident manager of this Company's newly opened Sulphate Pulp Mill at Port Alberni, British Columbia. Locale is a modern, growing community, in mild Pacific coast climate, well suited for family living. Liberal salary will be paid to a properly qualified man, who should be prepared to commence about August 1.

Bloedel, Stewart & Welch Ltd.
VANCOUVER, B. C.
J-27

REPRESENTATIVE WANTED

Prominent supplier of products to paper mills requires man to cover paper industry in southern states.

Requirements: Single—under 30 years of age—chemical engineering or chemistry degree—willing to travel extensively — some experince in southern high speed mills.

All replies will be considered confidential — please submit picture if available also complete resume of qualifications. Write Box 46-384 care Paper Trade Journal. J-27

CHEMIST FOR PAPERBOARD MILL

Experienced Chemist, Folding Grades, Will Find an Unusual Opportunity If Capable of Filling This Position. Please State Complete History of Experience and Salary Desired in Your Reply. Address Box 46-385 care Paper Trade Journal. J-27

DIE SINKER AND ENGRAVER

Opportunity for experienced die sinker and engraver capable of designing and engraving on steel cylinders, and making raised cutting edges for the purpose of embossing lace paper doilies. Must have had good background and experience. Splendid opportunity and permanent employment. Send detailed reply including experience, references, salary expected. Address Box 46-393 care Paper Trade Journal. J-27

HELP WANTED

PROCESS ENGINEER
Wanted

With wide experience in pulp and paper making processes. Must be able to develop flow diagrams and specify related equipment. Excellent opportunity for the right man. Please furnish complete experience record.
Address Box 46-261 care Paper Trade Journal. TF

SALARIED POSITIONS

$2,500-$25,000. This thoroughly organized confidential service of 36 years' recognized standing and reputation carries on preliminary negotiations for supervisory, technical and executive positions of the calibre indicated. Retaining fee protected by refund provision. Identity covered and present position protected. Send only name and address for details.

R. W. BIXBY, INC.
117 Dun Bldg., Buffalo 2, N. Y.

WANTED — Man familiar with paper stock grades to take charge of the Receiving Dept. of a one-machine mill making the better grades of boxboard. Good salary plus a bonus. Also WANTED Millwrights familiar with board mill operation. Good hourly rate plus bonus. Address Box 46-359 care Paper Trade Journal. JI-18

WANTED IMMEDIATELY — Experienced kraft pulp mill tour foreman, chemist or chemical engineer and junior chemist for new modern bleached kraft pulp mill. In replying, give experience, personal history and salary expected. Address Box 46-208 care Paper Trade Journal. TF

WANTED—Unusual opportunity for a Bag Machine Adjustor, experienced and capable of operating a small Bag Mill in Latin America. Give details and complete history. Address Box 46-386 care Paper Trade Journal. J-4

WANTED—Master Mechanic with first class Massachusetts Steam Engineer's license for Paper Mill in Western Massachusetts. Salaried position. Address Box 46-390 care Paper Trade Journal. J-27

WANTED—Experienced Mechanical Draftsman for work in pulp and paper mill located in the Fox River Valley of Wisconsin. Address Box 46-402 care Paper Trade Journal. J-4

WANTED—Alert, Mechinical Engineer, with paper mill experience for sales and engineering work with old established machinery builder. Excellent opportunity for right man. Write Box 46-405 care Paper Trade Journal. J-11

EXPERIENCED PAPER MAKER who has had experience in installing equipment, prefer man who has had experience in mills reclaiming waste paper. Must be free to travel. Write fully giving age, salary expected. Address Box 46-417 care Paper Trade Journal. J-27

TOUR FOREMAN for fourdrinier specialty paper mill located in Mid-west. Must have technical training. Give full particulars in first leter. Address Box 46-418 care Paper Trade Journal. J-4

WANTED—Night Boss for a one machine board mill. Must be experienced in the manufacture of jute liner and container chip. Mill located in the middle west. Address Box 46-392 care Paper Trade Journal. J-4

WANTED—Chief Draftsman—Must be experienced on pulp and paper mill machinery. To take complete charge of drafting room. Give full particulars in first letter. Address Box 46-420 care Paper Trade Journal. J-11

HELP WANTED

Wanted Night Superintendent for Specialty Paper Mill, Capable of taking Full Charge. Give age, experience, and salary expected in first letter. Address Box 46-414 care Paper Trade Journal. J-4

CHARLES P. RAYMOND SERVICE, INC.
294 Washington St., Boston, Mass.
Specializing in Paper Mill Personnel

Positions Now Open
Technical Director tissue paper mill
Assistant Purchasing agent
Mechanical engineers to design automatic bag machines, also for paper and pulp mills
Head cost accountant
Master mechanics and chief engineers, plant engineers, designers and draftsmen
Tour bosses
Graduate civil or mechanical engineers for New York State Mill
Fourdrinier and cylinder machien and back tenders for mills in United States and foreign countries
Beater engineers
Master mechanic for mill in Canada

We invite correspondence (strictly confidential) with paper and pulp mill executives seeking new positions and with employers seeking new personnel. J-27

WANTED

Bag machine designer for large paper converting plant in Savannah, Ga. Should have at least four years experience in designing small automatic equipment, ability to perform individual design assignments, and a well-proportioned sense of cost and practicability of design. Prefer man between 30 and 45 years of age. Salary commensurate with experience and ability. Please give full particulars in first letter. Write Employment Manager, Union Bag and Paper Corporation, Box 570, Savannah, Ga. J-27

WANTED

Chemical Engineer or Chemist for field service work on continuous beating and refining problems. Broad experience in mill operation, pulp and paper testing and fiber technology. Must be prepared to travel in the United States and Canada. Later on will require an experienced man for European countries. State qualifications and salary required, also recent photograph. Address Box 46-438 care Paper Trade Journal. J-27

WANTED

We have an opportunity for a man experienced in the conversion of facial tissue, familiar with the Teall folder, Container Equipment gluers and automatic boxers. Salary is entirely dependent upon how valuable you make yourself to us. Permanent, responsible job. Complete history of your experience and preferably a picture with your reply. Vicinity New York City.

Box 46-427 care Paper Trade Journal. A-15

WANTED IMMEDIATELY—Night Boss on cylinder machine for southern board mill. Address Box 46-434 care Paper Trade Journal. J-27

ADJUSTER—Experienced, self opening bag machine. Excellent opporunity, good salary and working conditions. Address Box 46-433 care Paper Trade Journal. J-4

ONLY THE UNIVERSITY OF HARD KNOCKS GIVES COURSES IN "KNOW-HOW"

There is no substitute for experience —yours as a paper-maker—ours as students of mill problems and equipment needs.

Beware, therefore, of inexperience. Beware of the casual equipment supplier but, rather, trust your fortunes to the supplier of long standing—to the engineer who has served the mills for years, grasps your problems and can help you develop tomorrow's ideas today.

BLACK-CLAWSON

THE BLACK-CLAWSON COMPANY, HAMILTON, OHIO
Divisions: **SHARTLE BROS. MACHINE CO., MIDDLETOWN, OHIO**
DILTS MACHINE WORKS, FULTON, NEW YORK
Associate: **ALEXANDER FLECK LIMITED, Ottawa, Canada**

HELP WANTED

WANTED

2 Machine Tenders and 2 Back Tenders for 104" Fourdrinier Machine making Board. 2 Machine Tenders and 2 Back Tenders for 82" trim, three-cylinder Machine making Board.

Mill planning extensive expansion and reconversion program.

Write to Box No. —— giving experience, references, etc. J-18

WANTED

Long established, nation-wide organization with extensive expansion program under way, is in need of an experienced Tour Boss familiar with Felt Mill operations, to be trained for Assistant Superintendent job at its New Orleans Plant. Exceptional opporunity for right man. Send complete resume giving experience, education, salary desired, etc., to Box 46-435 care Paper Trade Journal. J-4

TOUR BOSS for large paperboard mill in Mid-West, making patent coated, bleached manilas and light grades. Under 40. Address Box 46-423 care Paper Trade Journal. J-27

WANTED—Foreman or Superintendent having experience in embossing and embossing machines and methods. Must be able to rebuild, improve and devise. Address Box 46-428 care Paper Trade Journal. A-15

HELP WANTED

WANTED

Night Boss for a one machine board mill. Must be experienced in the manufacture of jute liner and container chip. Mill located in the middle west. Address Box 46-429 care Paper Trade Journal. J-4

COST ACCOUNTANT WANTED—Paper Mill experience in coating and related work necessary. Send resume of experience, education and salary desired to Box 46-425 care Paper Trade Journal. J-4

SITUATIONS WANTED

SALES REPRESENTATIVE

Former Army officer, recently discharged, graduate Chemical Engineer and Business Administration, experience chemical and mechanical pulping, book, tissue, and creped wadding manufacture and conversion, desires connection with paper mill or paper industry equipment manufacturer desiring sales or technical service representation in South East. Member TAPPI. Broad acquaintance among Southern manufacturers. Box 46-407 care Paper Trade Journal. J-4

SITUATIONS WANTED

Foreman-machine adjuster or Head-Adjuster on F. L. Smithe L.O. S.O. W.R.W. W.R. U.R. and all types of Plungers for making window and plain envelopes of all sizes and description for the Commercial and High-class social Stationery trades. 20 years of practical experience on the above machinery. Salary must be according to qualifications and experience. I am forty one years of age—married. My service could be available within two weeks or one month from date. Address replies:—

ANTHONY PALMIGIANO, JR.
252 Union Street, Brooklyn 31, New York

N.B. I am also familiar with F & S paper bag and cellophane bag machines. J-4

Graduate engineer, middle thirties, wants position in Southern industry. Planning, estimating, design and construction experience. Maintenance, supervisory and management experience in wood handling, all phases of sulphate pulping, Fourdrinier and cylinder operation lightweight papers to heavy boards. Knowledge of groundwood pulping and wallboard manufacture. Present salary $10,000. Address Box 46-413 care Paper Trade Journal. J-11

PRACTICAL MASTER MECHANIC and a Paper Maker. Thirty years experience in maintenance, installation, layouts on cylinders and fourdrinier equipment. Making kraft, board, tissue, waterleaf, parchment and rag stock. Desire a permanent connection. Address Box 46-400 care Paper Trade Journal. J-11

FOR SALE

COMPLETE 92" SINGLE CYLINDER PAPER MACHINE

BEATERS
1—2000 lb. Holyoke-Iron Tub Beater.
2—1200 lb. E. D. Jones (no tubs).
1—1000 lb. Dayton Beater (no tub).
1—1000 lb. Stout & Mills Iron Tub Beater.
1—400 lb. Gavit—iron tub beater.
1—Breaker Beater—Dilts Bandless Roll 62" diameter x 54" face—70 tons daily capacity.

CALENDER STACKS
1—5 roll 84" face—Farrel.
1—11-Roll 92" Face Calender Stack.
1—7-roll 36" Holyoke Machine. (supercalender)

CENTRAP
1—Shartle Brothers Centrap.

CENTRIFINERS
5—Bird Centrifiners, including motors and starters.

COATING MACHINE
1—26" six roll coating machine.

CYLINDER MOULDS
2—30" diameter x 74" face.
2—30" diameter x 54" face.
1—30" diameter x 75" face.
1—36" diameter x 84" face.

DRIVES
4—Smith & Winchester Drives.
1—Moore & White mortise gear drive.
1—D. O. James 75 H.P. Speed Reducer with couplings and motor base. Ratio 2.16 to 1. 900 RPM to 418 RPM.

DRYERS
2—8' diameter x 175" face.
1—48" diameter x 60" face, anti-friction bearings. Creping dryer.
1—48" diameter x 94" face.
1—24" diameter x 84" face. (Baby)
2—36" diameter x 64" face, with frames gears and bearings.
2—25" x 120" (Baby Dryers).
2—30" x 120".
1—48" x 100".
11—30" x 80". (Steel Dryers).
5—24" x 76". (Steel Dryers).
2—36" diameter x 38" face.

ERKENSATORS
2—I. W. E. Erkensators—bronze construction—complete with motors, starters and distributing box.

FLAT SCREENS
1—12 plate Murray Dunbar Flat Screen.
1—4 plate Flat Screen.

JORDANS
1—Noble & Wood Monarch, anti-friction bearings, direct connected to 125 h.p. synchronous motor.
1—No. 2 Miami Jordan.
1—No. 9 Emerson Jordan—for direct connection to a motor.
1—Noble and Wood, Menarch, new fillings.

LABORATORY EQUIPMENT
1—Mullen Tester.

MOTORS
1—125 h.p. synchronous motor—including starting equipment. (450 r.p.m.)
1—25 h.p. motor, including starting equipment.

PRESS ROLLS (Rubber Covered)
1—27½" diameter x 186" face.
1—26" diameter x 185" face.

PULP EQUIPMENT
1—14' Globe Rotary Digester.
1—84" Carthage Chipper (Four Knives).
1—32" three pocket Glens Falls Grinder (for 27" wood).

PULP SCREEN
1—IMPCO centrifugal pulp screen design No. 3.

PULPER
1—Jones Pulper.

PUMPS
1—10 x 11 Connersville Vacuum Pump.
1—10 x 7½ Connersville Vacuum Pump.
1—No. 4 Connersville Vacuum Pump.
1—6 x 2L Connersville Vacuum Pump.
1—No. 7 Sturtevant Vacuum Pump.
1—Buffalo Pump—5500 g.p.m. direct connected to 100 H.P. Motor (50' head).
Various sizes of Centrifugal and Plunger Pumps. Write us regarding your particular requirements.

RAG CUTTER
1—Taylor Stiles, 14", Little Giant.

REELS
1—72" Downingtown Expansion Reel.
1—2 Bowl Reel — 112" face — bowls 20" diameter.
1—2 Bowl Reel—110" face.
1—Set Stack Reels, capacity trim 143".

ROLLS
500—Brass tube—steel tube—rubber covered iron rolls—various sizes.

SAVEALL
1—Saveall 36" diameter x 96" face cylinder mold. (With iron end vat.)
1—Saveall 36" diameter x 96" face cylinder mold. (With wood vat.)

SCREW PRESS
1—Valley Iron Screw Press.

SCREEN PLATES
36 plates—43 x 11 7/8"—.050 cut—bevel edges.
24 plates—Recently recut .008.
12 plates—Recently recut .035.
Also other sizes and cuts in stock.

SHREDDERS
1—No. 25 CRSE Mitts & Merrill Hog.
1—Gilman Shredder.
1—Waterville Shredder.

SHEETERS
1—68" Sheeter with layboy.
1—128" Moore & White Sheeter with layboy.
1—48" Langston heavy duty chopper (this is a combination machine, combining a slitter, scorer, sheeter and chopper.)

SLITTERS AND WINDERS
1—108" Warren Winder.
1—36" Beck Razor Blade type Slitter & Winder.
1—42" Wilson Slitter and Winder.
1—110" Beloit slitter (slitter attachment only).
1—60" Moore & White Slitter and Winder set for 5/8" slits.
1—60" Moore & White Slitter and Winder set for 7/16" slits.
1—120" Moore & White 4 drum slitter.
1—80" 2 drum Warren Winder.

STOCK PULPS
1—12 x 20 Triplex Shartle.
1—10 x 20 Duplex Shartle Brothers.
1—10 x 12 open impeller. (All lead).
1—8 x 18 Downingtown Duplex.
Numerous other Centrifugal Stock Pumps. Advise as to your requirements.

SUCTION BOXES
1—Nash 100" face Suction Box.
1—Brass Suction Box—96".

V-BELT DRIVES
1—{23" diameter x 14" face, 10 grooves. {15" diameter x 14" face, 10 grooves.
1—{32" diameter x 21¾" face, 15 grooves. {14¾" diameter x 21¾" face, 15 grooves.

WET MACHINE
1—74" Moore & White.

We are always in the market to purchase your surplus or idle machinery. What have you to offer? Wanted Cylinder and Fourdrinier Machines (complete mills).

J. J. ROSS COMPANY

250 Frelinghuysen Ave. Tel.—Bigelow 3-3720 Newark 5, N. J.

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265 PASSAIC STREET
NEWARK 4, N. J.

CONVERTING
PAPER MAKING EQUIPMENT

NEW, USED, REBUILT
PAPER AND PULP MACHINERY

PURCHASED FROM THE UNITED STATES NAVY

18—Worthington Close Coupled Centrifugal Pumps. 6" x 6" 650 g.p.m. 25' head. 6 h.p. Star Electric splash proof motor. 1750 r.p.m. 440 volt, 3 ph.-60 cycle, ball bearing.

16—Warren Vertical Pumps. 6" suction. 3" discharge. 135 g.p.m. 80' head. Direct Connected 6 h.p. General Electric Motor. 1750 r.p.m. 440 volts, 3 ph.-60 cycle, ball bearing.

1—Warren Close Coupled Centrifugal Pump. 3" suction. 2" discharge. 60 g.p.m. 90' head. 6 h.p. General Electric 1750 r.p.m. 440 volts, 3 ph-60 cycle, ball bearing. All the above pumps and motors are in excellent condition and are of bronze construction.

2—Worthington 3". 2 stage, 200 g.p.m. 224' head. Bronze Ball Bearings.

AIR HOISTS
2—Two-Ton Ingersoll Rand
2—Five-Ton Ingersoll Rand

ATTRITION MILL
1—Sprout Waldron direct connected to two 20 H.P. motors—3 phase—60 cycle—440 volts.

BEATERS
1—1000 lb. Herne Iron Tub.
1—1200 lb. Holyoke Wood Tub.
4—Valley Iron 750 lbs. Iron Tub Beaters, with Silent Link Belt Drive.

BIRD SCREEN PLATE
28 Plate—60 cut. New condition.

BLOWERS
1—American ball bearing blower, size 17" x 23" for motor drive.
1—American Blower, size 40. For belt drive.

CALENDER DOCTORS
1 set of 16 Warren Doctors 104" face with frames.

CALENDER ROLLS
30 rolls various sizes

CALENDER STACKS
1—4 roll Beloit, 110" face.
2—3 roll Holyoke 36" face.
1—3 roll Moore & White—82" face.

CONVERTING EQUIPMENT
4—Sanitary Napkin Machines. With motors and starters.
1—Bliss Double Head Stitcher.
1—Waterville Grinders.
1—36" Waldron Reeling Machine.
1—30" Dampening Machine.
1—30" Brush Coating Machine.
1—Copper Mixing Tank with agitator—40 gal.
1—Cast Iron Kettle 20" x 24" 2 outlets.

CREPING MACHINE
1—Complete Bagley & Sewall Creping Machine. Dryer 100" face x 48" diameter. Ball bearing equipped. Used 6 months.

CYLINDER MOLDS
2—Impco—84" face—40" diameter with stainless steel face wire
2—110" face x 36" dia.
1—90" face x 36" diameter—with ball bearings and cast iron end vats.
4—Cylinder Molds—cast iron end vats—cylinders 120" face x 36" diameter. Ball bearing.

DANDY ROLLS
2—122" face 10" dia.
1—138" face 12" dia.
1—129" face 9½" dia.

DRIVES
1—Falk 25 h.p.—7.5 to 1.—1750 r.p.m.

DRYER DOCTORS
46—Warren Doctors. Various sizes.

DRYERS
—36" diameter x 102" face with bearings
36—28" diam. 96" face 2 deck frames Beloit.
82—48" Dia. x 46" Face, Chromium Plated.
2—24" Dia. x 46" Face.
4—48" diameter x 70" face.

ELECTRIC HOIST
1—Sprague Electric 3 ton hoist—5 h.p. 3 phase —60 cycle—110 volts.

FLAT SCREENS
2—14 plate Union Screen Company
1—8 plate Sandy Hill Packer—roller shoes.
1—10 plate Packer screen with scraper.

FOURDRINIER SHAKES
2—Beloit Fourdrinier Shakes.
1—Sandy Hill Bertram Shake. Late type.

FOURDRINIER WET END
1—120" Beloit Fourdrinier Wet End.
1—74" Pusey & Jones Wet End.

GRANITE ROLLS
2—112" face 20" diameter.

HAMMERMILLS
1—American Hammermill—37" anti friction bearing equipped.
1—Jeffrey Swing Hammer size 18"x24"—Type A.
1—Williams 18" Hammermill Ball Bearing.

HOG
1—Mitts & Merrill Hog. Number 5252.

JORDANS
2—E. D. Jones Majestic Jordans, with one new set of fillings for both plugs and shell—belt driven.
2—#2 Miami Jordans—motor driven.
1—Noble & Wood Pony—belt driven.

MISCELLANEOUS
2—Nugent Oil Filters (new).
1 Shartle Brothers cast iron Riffler or Settling Trough, 72' long, 8'7" wide.

MOTORS
3—General Electric Motors Var. Speed 17.5 h.p. —1650 r.p.m.; 8.75 h.p.—825 r.p.m.; 5.83 h.p. —550 r.p.m. 3 phase, 60 cycle, 550 V. with Starter.

PLATERS
2—Holyoke 2 Roll 18" dia. 38" face.

PULLEYS
60—Cone Split and Solid Cast Iron Pulleys. Various Sizes.

PULP EQUIPMENT
1—Economy Electric Pulp Baler.
3—Improved No. 2 Knotters.
1—Carthage 4 pocket 27" grinder. Ball bearing equipment
1—128" face Kamyr Press.
1—84" Sumner Disc Barker with motor.

PULPERS
1—Sturtevant Bale Pulper with conveyor & motors used three years.
1—Voith Pulper 20 tons cap.

PUMPS
4—Worthington Pumps 10,000 g.p.m.—35' head. Requires 75 h.p. at 550 r.p.m.
1—DeLaval 6" x 6".
1—DeLaval 1800 g.p.m. 30' Head, 500 r.p.m.—8" Suction—10" Discharge, Ball Bearing—Belt Driven—or for Direct Connection to Motor. Open Impeller.
1—Warren Open Impeller—8" Suction—12" Discharge—Ball Bearing—200 g.p.m., 295' Head —1750 r.p.m. for Direct Connection to Motor.
2—Warren Double Suction Ball Bearing. 6" Suction—14" Discharge—900 g.p.m., 250' Head—1150 r.p.m.
4—Pusey & Jones Open Impeller, 10" Stock Pumps, Belt Driven.
2—3" Pusey & Jones Open Impeller Stock Pumps, Belt Driven.
1—Worthington 400 g.p.m. 35' head 1750 r.p.m. Ball bearing.
1—15" Buffalo—4000 g.p.m.—70' head. For direct connection to motor.
2—New Domestic Pump Co. Ball bearing. 2100 g.p.m.—28' head—10" suction—8" discharge—open impeller. Base and coupling for direct connection to motor.
2—La Bour Company self priming ball bearing pumps. 2½" suction. 2½" discharge. 150 g.p.m.—30" head with extended base for motor.
1—Domestic Pump ball bearing—250 g.p.m., 4" suction, 3" discharge—30' head with extended base for motor.
1—Marlo ball bearing pump—420 g.p.m.—100' head, 4½" suction, 3" discharge. With extended base for motor.
2—Domestic ball bearing pumps—240 g.p.m.—40' head—4" suction—4" discharge. With extended base for motor.
1—Domestic ball bearing pump—1400 g.p.m.—28' head—8" suction—8" discharge. With extended base for motor.
1—Midwest—1000 g.p.m.—180' head—6" suction—6" discharge for motor for pulley drive.

REELS
1—2-bowl 100" face 20" dia. bowls
1—Black-Clawson 2 Bowl—120" face. Takes 60" diameter roll.

REFINERS
2—#1 Claflin Refiners. Bronze construction.

ROLLS
40—Table, Dress, Felt, Wire, Breast and Calender Rolls. Various Sizes.

ROTARY DUSTERS
2—E. D. Jones Steel cage down draft dusters (wing type). 48" diameter—14'6" long.

ROTARY SCREENS
2—#2A Bird with copper vats.
2—#2 Bird with copper vats.
2—#1 Bird with steel vats, lead lined.
4—Moore & White.

RUBBER COUCH
1—82" face x 18" diameter.

RUBBER PRESS ROLLS
1—185" Face—26" Diameter } Used 20 Days
1—186" Face—27½" Diameter }
1—119" Face—19½" Diameter.
1—109" Face—17½" Diameter.
1—120" Face—19" Diameter.
1—118" Face—18" Diameter.
1—120" Face—18" Diameter.
1—107" Face—18" Diameter.
1—106" Face—18¼" Diameter.

SAVEALLS
1—A. D. Wood cylinder 48" dia. 60" face.
1—Derr Company No. 40 ADKA Saveall 340-440 GPM. Used 1 month.

SCREW PRESS
1—Valley Iron Screw Press. Used 2 years.

SHEETERS
1—60" Beloit Single Knife heavy duty.

SHREDDERS
2—24" Sprout Waldron heavy duty shredders—anti friction bearing equipped.
1—Taylor Stiles Portable Pulp Shredder.

SLITTERS AND WINDERS
82" Warren two drum—fully rebuilt.
1—41" Waldron Slitter and rewinder. Roll embossing attachment.

SILL PLATE—CAST IRON
300 Ft. 12" wide 1" thick.

STUFF PUMPS
1—10" x 20" Shartle triplex.
1—12" x 20" Shartle triplex.
2—4" x 10" Shartle Duplex direct connected to 3 h.p. gear head motors.

SUPERCALENDER STACKS
1—7 roll Norwood 72" face; 3 paper and 3 iron rolls. 1 new spare paper roll.
1—7 roll Norwood 52" face; 3 paper and 4 iron rolls. 1 new spare paper roll.
1—9 roll Norwood 83" face. Bottom roll 24" diameter. Top roll 20" diameter.

TRIMMER
1—63" Seybold.

TURBINES
2—General Electric Turbine Paper Machine Drive 250 h.p.—350 r.p.m. 125 lb. steam pressure 30 lb back pressure.
1—125 H.P. Westinghouse geared steam turbine. 5150 r.p.m. to 270 r.p.m. 125 lbs. steam pressure. 15 lbs. back pressure. Used two years.

UNWINDERS
1—42" John Waldron Unwinder. Used 1 year.

VACUUM PUMPS
1—14" x 20" Connersville
1—#1 Nash—for direct connection to motor.

WASHERS (Beaters)
1—54" face—45" diam. with rigging. New.

WET MACHINES
1—76" Pusey & Jones Cylinder Mould, 76" face —36" diameter with rubber couch, 18" dia.

THE ABOVE IS A PARTIAL LIST OF EQUIPMENT OFFERED FOR SALE.

AMERICA'S LARGEST BUYERS OF PAPER MAKING MACHINERY

We buy single items to complete Pulp and Paper Mills.

SITUATIONS WANTED

SUPERINTENDENT—Practical Paper Maker on cylinder products with engineering background. Can modernize or remodel your mill for greater flexibility to improve quality and quantity. Address Box 46-404 care Paper Trade Journal. J-4

SUPERVISION, Finishing Dept. or Paper Converting Plant. Years diversified experience, Sheeting, Rewinding, Cutting, etc. Proficient operator and instructor, varied packing, Clerical, Scheduling, Shipping. Address Box 46-401 care Paper Trade Journal. J-4

MECHANICAL ENGINEER—22 years experience in the pulp, paper and board industry in Engineering and Managing capacities. Operation Power, Maintenance and Construction. Kraft and Sulphite pulping processes. Paper machines and conversion. Thoroughly versed in details, methods and supervision. Capable of taking over with a minimum of orientation time. Invites correspondence. Address Box 46-403 care Paper Trade Journal. J-11

CHEMICAL ENGINEER—Graduate pulp and paper technology. Interested in research development in paper or allied field; liaison work between laboratory and manufacturing departments or consumers. Age 31. Address Box 46-409 care Paper Trade Journal. J-4

MILL REPRESENTATIVE covering the jobbing and direct trade for the past 15 years from Pennsylvania through to the Carolinas, now desires to operate over the same terrftories with 2 or 3 non-conflicting lines. What have you to offer? Address Box 46-412 care Paper Trade Journal. TF

SALES POSITION WANTED by Salesmanager of mills making Kraft and Sulphite Specialties. Present mill has been sold. Now located in East. Well acquainted converting and jobbing trade over wide area. Also interested in mill agency. Address Box 46-416 care Paper Trade Journal. J-27

WANTED—Position as Plant Manager or Superintendent, by a good practical Papermaker. Many years experience on light weight papers, Napkins, Toilets and Twisting Papers. Fourdrinier and Cylinder machines. Capable of taking complete charge. Address Box 46-426 care Paper Trade Journal. J-4

PLANT ORGANIZER and Superintendent — Now located in East. 18 years experience in converting papers. Printing, sheeting, coating, laminating and Laboratory Technology. Address Box 46-440 care Paper Trade Journal. J-27

SUCCESSFUL SALESMAN with wide experience in coarse paper products desires connection with reputable wholesale firm, or mill for Philadelphia and vicinity. Highest references as to character and ability. Address Box 46-437 care Paper Trade Journal. J-4

FOR SALE

FOR SALE

1—94" Single Cylinder Paper Machine equipped with Edwards pick-up attachment, 9 dryers, 48" dia. 94" face, double deck frames and gears, 8 roll stack of calenders, two-spool reel, slitter and two-drum winder, Beloit Hypoid enclosed drive, beaters, jordans, screens, pumps. All equipment for complete mill. Will sell "as is" or fully rebuilt and guaranteed. Prompt shipment.

Osborne Paper Mill Equipment Co.
Fulton, N. Y. **J-27**

FOR SALE

5—2000# Jones High Speed Beaters Tile lined with individual 75 HP. General Electric motors, starters, and belts. Can be seen in operation up to August 1st. Exceptionally good.

FRANK P. LYDEN
Ft. Edward, N. Y.
J-11

FOR SALE

FRANK H. DAVIS CO.,
ESTABLISHED 1889
USED AND REBUILT PAPER MACHINERY.

FOR SALE

1—110" four drum Moore & White winder with slitter part, 15" diameter drums, winds 60" diameter roll, excellent condition.
6—12 plate Packer Screens.
2—Forced draft Buffalo fans, size 6½.
2—2800 lb. iron tub broke beaters.

PULPERS

1—E. D. Jones Pulper, No. 21, direct connected through Falk reducer to 50 HP induction motor, type K., G.E. magnetic reversing switch and push button station.

1—Jones Pulper, No. 33, one speed reducer, 40 HP induction motor, reversing switch and push button station.
Both pulpers new in 1938.

SHREDDERS

3—Mitts Merrill No. 15 CF right hand pulp shredders, 36" dia. cylinders, removable shell type bearings, coupled motor drive. One is equipped with 125 HP variable speed motor and controls; one is equipped with motor without the control and one shredder is without motor or control.

KNIFE GRINDER

1—90" Covel and Hanchett knife grinder, size 90 D, purchased new in 1938.

LIFT TRUCK

1—Lewis Shepard Lift Truck, type NHF, model ST, capacity 3500 lbs. Lift 5". Platform 48" x 42". Low 5", high 5". New 1937.

CONVEYOR

1—Alvey Horizontal Carton Conveyor, 98 ft. centers, two strand 3 pitch roller chain, 2½ x 2¼ x 20 maple flights, 3" on centers.

Builders of
ASPHALT COATING, COMBINING MACHINE, GUMMING AND CREPING MACHINE, ROLL GRINDER
FRANK H. DAVIS COMPANY
175 Richdale Ave., Cambridge, Mass.

FOR SALE
BREAKER BEATER
Dilts Bandless Roll 62" diameter x 54" face—70 tons daily capacity.
J. J. ROSS COMPANY
250 Frelinghuysen Ave., Newark, 5, N. J.
Tel. Bigelow 3-3720

FOR SALE
1—84" Wet machine with felts
1—Railroad Duster
1—Seybold 63" Cutter
1—Economy Pulp Baler
2—Rag Beaters complete with new 3" Cypress tubs

All equipment can be inspected on premises. Subject to prior sale. Address Box 46-399 care Paper Trade Journal. J-4

FOR SALE—Sheridan 20 x 22 four post Embosser, with A.C. motor and heating elements. Excellent condition. Address Box 46-442 care Paper Trade Journal. J-4

FOR SALE—Used Iron Tub Dilts Beater left hand, having beater roll 62" x 54". Inspection invited. Address Box 46-443 care Paper Trade Journal. J-27

FOR SALE

REVAMPING AND REBUILDING MILL AND CAN OFFER FOR SALE

1—Noble & Wood Mammoth Jr. Jordan ¼" Filling. Now operating.
1—4000# Capacity motor driven freight elevator with automatic stop control—can be inspected in operation at our plant.
1—6" Lawrence Centrifugal Water pump.
1—Buffalo Centrifugal Stock Pump—8".
2—8" Barnes Centrifugal Sewage Pumps.
8—100" Screen plates for No. 2-A Bird Screen. Slots, .022—never used after being recut once.
1—Rubber covered press roll 12" diameter by 68" face—Journals 5" diameter by 7¼" long.
1—Rubber covered press roll 12" diameter by 84¼" face—Journals 5" diameter by 7¼" long.
1—20" face cast iron tapered pulley—2-15/16" Bore, Taper 31"—29½".
2—20" face cast iron tapered pulley—3-7/16 Bore, Taper 31"—30".
1—24" face cast iron tapered pulley—3-7/16" Bore, Taper 31⅜"—29⅝".
2—Steel split pulleys 60" diameter by 31" face —5-15/16" bore.
1—Cast iron split pulley—60" diameter by 21" face by 3½ bore.
1—Cast iron split pulley—40½" diameter by 21" face by 3½ bore.
1—Cast iron split pulley—84" diameter by 36" face by 5-15/16" bore.
1—Solid cast iron split pulley—72" diameter by 16" face by 16" face by 8⅝" bore.
2—Steel split pulleys—60" diameter by 31" face by 5-15/16" bore.
1—Paper pulley—24" diameter by 21" face by 4½" bore.
1—Tapered cast iron split pulley. Taper 30" to 28½" by 20" face by 3-15/16" bore.
1—30" x 90" Cylinder Mould—7" diameter shaft inside cylinder.
1—9½" Diameter x 83" Face Rubber—covered squeeze or wringer roll—Journals 1-15/16" diameter.
1—9" Diameter x 88" Face Calender roll—5" diameter journals.
12—6½" Dia. x 92" face steel dryer felt rolls with 1-7/16" x 6½" Journals.
2—4" Gould centrifugal stock pumps with 2 vane open impeller. Capacity 600 G.P.M. at 40' head—1175 R.P.M. with 10 H.P. Operated less than two years.
2—Pair Noble & Wood lighter stands complete with lighter beams and bearings for 8" diameter journal beater roll.

A visit to the mill would prove profitable as we have many items for sale too numerous to mention. See our superintendent, Mr. O. P. Fussell at our plant in Walloomsac, New York.

WALLOOMSAC PAPER MILLS, INC.
MILLS: Walloomsac, New York
MAIN OFFICE: 25 Vanderbilt Avenue
New York 17, N. Y. **TF**

One standard Langston tube winder.

1—64" Creping Machine. Creping roll 12" in diameter with doctor blade. Two dryers 36"x64" and rewind.

1—Noble & Wood Pony Jordan with extra plug, ⅛" steel fillings.

1—Beloit 8x18" Duplex Plunger Pump.
1—84" Carthage Machine Co.'s 4-knife Chipper.

1—36x84" Wet Machine Cylinder.

1—Bird Machine Co.'s Pulp Screen.

1—84" Langston shear cut Slitter and Rewinder. Further particulars on request.

1—Breaker Beater, Dilts bandless type roll, 62" diameter and 54" face. Cast iron tub. Shartle perforated steel back fall.

1—Noble & Wood 100 lb. Experimental Beater.

1—Model A Morrow-Stevens Automatic Wrapping Machine and one Better Packaging Carton Sealing turntable type machine. Full particulars on request.

GIBBS-BROWER COMPANY, INC.
21 East 40th St., New York 16, N. Y.
TF

FOR SALE

FOR SALE

1—variable speed, type G, Terry turbine, good for 250# pressure and up to 350# back pressure. Oil pressure regulator maximum R.P.M. 3850, maximum R.P.M. reducing gear 655. Now operating at 135# pressure but can go to 250#.

SHARTLE BROS. MACHINE CO.
Middletown, Ohio

FOR SALE

76" Langston Continuous Travel Cut-Off Knife with Gear Box.
63" Beloit Rotary Board Cutter.
66x46 & 80x70 Sheridan 4-Post Die Cutters —Model #25.
28" x 38" Seybold Embosser.
50" & 46" Miehle Printers & Die Cutters.
56" Waldron 6-Roll Polisher Coater.
64" Waldron Drum Rewinder.
Also Slitters & Rewinders, Creasers, Scorers, Trimmers, Gluers, Stitchers, Corner Cutters, and numerous Paper & Board Converting Machinery. Write for Bulletins. Over 100 machines now available.

SOUTH WABASH ENGINEERING CO.
2937 South Wabash Avenue
Chicago 16, Ill. J-27

FOR SALE

1—Valley Iron Works Pulper, with motor Capacity 1000# per hour
1—84" 4 knife chipper
1—No. 1 A Bird screen, .014 cut plates
2—6 plates screens (Sandy Hill)
3—10 plate Waterous screens
1—2L Connersville vacuum pump
1—8 x 10 Connersville vacuum pump
1—72" Wet machine (Good condition)
1—84" Heavy duty Hamblet cutter

FRANK P. LYDEN, FORT EDWARD, N. Y. J-18

FOR SALE

2—new Black-Clawson 12 x 8 open impeller fan pumps.
2—new Nash K7 vacuum pumps.

SHARTLE BROS. MACHINE CO.
Middletown, Ohio

MACHINERY FOR SALE

COATER

1—27" paper coating machine (experimental) 11" dia. x 27" coating cylinder, 20 x 3" pulley drive.

DIE CUTTER

1—power die cutter 19 x 42" head, geared drive.
8' 2¾" single leather belting .45 perforated metal belt guard.

AMERICAN LAUNDRY EXTRACTOR

1—20" under driven extractor. 26' 3" double leather belting 1.08. 1 dip truck and basket.

DRYING OVEN

1—cellulose paper drying oven 5 x 11 x 7' high galv. iron, 2 pair hinged doors, galv. iron vent pipe, 1 Modine heating unit, complete, including 2 sprinkler heads, steam pipe.

Address Box 46-310 care Paper Trade Journal. TF

PAPER COATING MACHINERY—Waxing, Oiling, Gumming, Gluing, Carbon, Laboratory Coating and Treating Machines. High speed. New improvement. MAYER MACHINE COMPANY, Inc., 1155 Scottsville Road, Rochester, 11, N. Y. TF

FOR SALE

FOR SALE

Rubber Covered Couch Rolls
2—88" face 20" dia. New rubber, never used.
1—99" face 18" dia. New rubber, never used.
1—75" face 15" dia. New covering.
3—87" face 15½" dia. Newly ground, 1½" good rubber.
2—48" face 15" dia. Newly ground, about 1" good soft rubber.

OSBORNE PAPER MILL EQUIPMENT CO.
FULTON, N. Y. J-4

PAPER MILL EQUIPMENT

For Sale

68" Rice, Barton & Fales Slitter-Rewinder, for use on dry end of paper making machine.
80" Finley mill type Sheeter.
34" Inman shear cut Slitter.
38" White Auto. Power Cutter.
54" Brown & Carver Power Cutter.
14 x 22 John Thomson Presses.
BALING MACHINES—NEW—Both Hand and Power.

THOMAS W. HALL COMPANY, Inc.
120 West 42nd St., New York 18

FOR SALE

1—14' Globe Rotary Cooker—complete—never used.

J. J. ROSS COMPANY
250 Frelinghuysen Ave., Newark, 5, N. J.
Tel. Bigelow 3-3720 J-27

FOR SALE

New and guaranteed used steel pipe and boiler tubing suitable for paper cores and all other purposes. Also, valves, fittings, wood and steel tanks and steel buildings.

JOS. GREENSPON'S SON PIPE CORP.
NAT'L STOCK YARDS,
ST. CLAIR CO., ILL.
JL-25

FOR SALE

1—218 #20 Cameron winder, used about one year.

Box 46-436 care Paper Trade Journal. J-4

FOR SALE

8—New Shartle iron tub beaters with rolls 80" dia., 55" face, anti-friction bearings, stainless steel hoods, ideal for broke beaters, batch breakers or washers, capacity about 4000#.

Osborne Paper Mill Equipment Co.
Fulton, N. Y. TF

FOR SALE

2—Valley Iron Screw Presses
2—Fletcher Bleachers
1—Frederick Centrifugal pump, 8" SSV, 1400 GPM
1—Shartle 15" BI Centrifugal pump, 5300 GPM

SHARTLE BROS. MACHINE CO.
Middletown, Ohio

FOR SALE—1 Hamilton-Corliss Variable Speed Twin Engine, size of cylinders 12" x 24". Also Triple-Deck Frames for ninety 36" dryers, any width. The Chesapeake Paperboard Co., Baltimore 30, Md. TF

FOR SALE—Beloit 116" Slitter—3 top slitter brackets no blades—3 bottom slitters complete. Thomas Paper Stock Company, 860 West Evergreen Ave., Chicago, 22, Illinois. TF

FOR SALE

FOR SALE

1 Hamilton-Corliss Engine #3066, 16x30 E, Right Hand, 110 lbs. initial steam pressure. Atmospheric exhaust, 110 R.P.M., 180 I.H.P. at 25% cut off, 26 lbs. steam per I.H.P. hour. Good condition.

THE WRENN PAPER COMPANY
Middletown, Ohio J-4

FOR SALE

1—92" single cylinder Paper Machine—including 9 dryers, 48" diameter Beloit enclosed Hypoid Drive—wet end—reel—winder—48" diameter creping dryer.

J. J. ROSS COMPANY
250 Frelinghuysen Ave., Newark, 5, N. J.
Tel. Bigelow 3-3720
J-27

FOR SALE

New brass covered felt or wire rolls 6½" dia., 84 to 120" face. These are made from government surplus and are new in all respects.

Osborne Paper Mill Equipment Co.
Fulton, N. Y. TF

FOR SALE LEATHER BELTING:—84 3/12' and lap of 29 1/" S. H. 3 ply, cleaned and dressed. SELF-LOCKING CARTON CO., PALMER, MASS. J-27

FOR SALE—Moore & White Style K.T. Duplex Cutter with one Revolving Duplex Slitter having 94" length of knives and three each top and bottom Slitters on each of two slitter shafts and with a two reel unwinding backstand. Ready for immediate shipment. Theo. Adams, 111 West Washington St., Chicago, 2, Ill. A-29

FOR SALE—50" Seybold Automatic Clamp Cutter, thoroughly rebuilt and fully guaranteed. Address Box 46-441 care Paper Trade Journal. J-27

FOR SALE—8 x 12 Oliver Save-all with vacuum take-off. Filer Fibre Company, Filer City, Mich. J-4

FOR SALE—50" Sheridan New Model Cutter in good working order. Address Box 46-421 care Paper Trade Journal. J-20

FOR SALE — COMPLETE 62" BELOIT LAMINATOR. WILL PASTE UP TO 4 PLYS BOARD FROM ROLLS PRODUCING SHEETS ALL LENGTHS. WITH SLITTERS, MOTOR, REEVES DRIVE, ETC. ADDRESS BOX 46-395 care Paper Trade Journal. J-18

FOR SALE—One Jones Imperial Jordan with sliding base, plug slotted for ½" bars. Also 200 h.p. motor for same 550 volts, 3 phase, 60 cycle. Address Box 46-411 care Paper Trade Journal. J-4

FOR SALE—110" Hamblet heavy duty Sheeter with Slitters and four roll back stand. Of modern vintage—fine for any mill where a powerful sheeter of this size is needed. Thomas W. Hall Co., Inc., Stamford, Conn. J-4

WANTED

WANTED ANY OR ALL OF THE FOLLOWING:

1 carload 45 x 69 Antique or Eggshell, free sheet, white or natural, bulk 392 to 1"
131 reams 45 x 69 Antique or Eggshell, free sheet, white or natural, bulk 320 to 1"
½ carload 44 x 66 Antique or Eggshell, free sheet, white or natural, bulk 320 to 1"

Address Box 46-431 care Paper Trade Journal. J-27

WANTED

WANTED — LAMINATOR — PASTER

Want pasting machine any trim width, suitable for laminating three to five plies of chip or similar board, with total caliper of finished solid fibre board ranging from .065" to .125". If possible Combiner should be equipped with motor, drive, slitters, and cut-off knife. Please furnish complete details regarding component parts and stations of Paster, type of adhesive used, place of inspection, availability date, and sale price. Address Box 46-376 care Paper Trade Journal. J-27

WANTED

Fourdrinier Section and Rolls, Press Rolls, Felt Rolls, Cone Pulley Drives and other parts except driers, for 94" approx. Paper Machine. Address Box #46-408 care Paper Trade Journal. J-4

WANTED

30 to 50 Dryers from 80" to 120" face.
One Fourdrinier machine trimming not less than 72". Prefer wider.
Box No. 46-410 care Paper Trade Journal. J-27

WANTED

WANTED

PAPER TWISTING MACHINE, USED OR NEW, SINGLE OR TWO UNITS NEEDED FOR EXPORT. OFFERS BY AIR-MAIL TO "OMEGA" Casilla 554 QUITO, ECUADOR, SA J-27

BOARD MACHINE

65 to 90 inch trim for manufacture of Folding Box Grades for private use. Would consider old machine with rehabilitation possibilities. Located New York, New Jersey, Pennsylvania or New England area.

Box 46-389 care Paper Trade Journal.

J-4

WANTED—Used Single Face Corrugator 36", 50" or 60" Wide B Flute. State size of rolls, make, price, condition and delivery. Address Box 46-415 care Paper Trade Journal. J-11

WANTED — Cameron Cutter No. 24-2A-50. Give full information, price, condition. Address Box 46-430 care Paper Trade Journal. J-27

REQUIRED Pocket shape envelope Meritortype Smythe machine to make envelopes 2¼ x 3½ up to 4 x 6. Reply giving full particulars, price and where machine may be seen. Address Box 46-432 care Paper Trade Journal. J-27

WANTED

WANTED—Paper Board Machine, capable of producing 35 to 100 tons folding box board daily. Replies held in strictest confidence. Address Box 46-439 care Paper Trade Journal. J-27

WANTED—Adjustable Grocery Bag Machines with printing attachment; also rewinders 45" to 72". Camerons, Langston or Kidder. Address all replies to Box 46-387 care Paper Trade Journal. J-4

KRAFT PAPER — Wanted. Side runs, end trims. Can use all widths like 2" or 3" up to 50", up to 36" diameters. American Cordage Co., 11 Commerce SW, Grand Rapids, Mich. J-27

WANTED — DISCARDED PAPER MILL FELTS. HIGHEST PRICES paid for all kinds of discarded paper mill felts. LARGE or SMALL QUANTITIES accepted. Prices quoted immediately on receipt of samples. ADDRESS: GLASER AND YOFFE, INC., 80 NORTH MAIN ST., NATICK, MASS. TF

WANTED—Four room apartment—Cleveland or vicinity. Address Box 46-298 care Paper Trade Journal. TF

WANTED—W & P Shredders, Evaporators, Generators and Boilers, Slitters, Cutters, Hydraulic Presses, Sheridan Presses, Dryers. Address Box 46-32 care Paper Trade Journal. TF

WANTED—Twelve or more dryers, size to be 96" face, 104" shoulder to shoulder of journal, 42" dia. Address Weaver-Wall Company. Avery, Ohio. J-25

WANTED—Old Evaporator Tubes 1", 1¼" and 2" O. D. Why sell them for junk? Write us if you have any. Also when you get ready to change over. S. Bender, P. O. Box 271, Shreveport, Pa. A-1

WANTED—45" to 65" Hamblet or Beck Sheeter. Address Box 46-422 care Paper Trade Journal. J-4

WANTED—Straight pass drying equipment to handle paper coating process. Address Box 46-398 care Paper Trade Journal. TF

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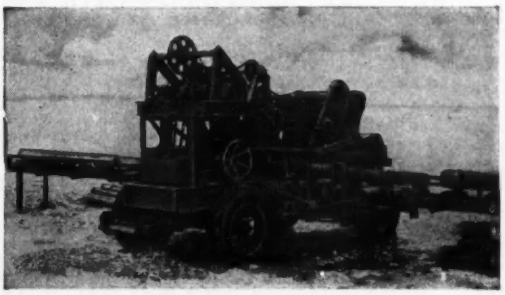
DE LAVAL STEAM TURBINE CO. TRENTON 2, NEW JERSEY

NEKOOSA PORTABLE WOOD PEELER

10 Men



The number of men required to operate the Nekoosa Portable Wood Peeler is determined by the layout of the wood handling equipment on the particular operation. Ten men can operate it without auxiliary equipment and produce as much peeled wood as 50 men peeling by hand. Auxiliary handling equipment will further eliminate labor.

Machine is operated by 30 H.P. motor.

Large Capacity

Low Cost Operation

No Wood Loss

Write for descriptive bulletin

manufactured by

Nekoosa Foundry & Machine Works Inc.

Nekoosa, Wis. **U. S. A.**

A LONG TIME TO LOAD THE TRUCK

3½ MIN. TO UNLOAD IT !

It takes this Blaw-Knox Size No. 8 Grapple just 1 minute, 16 seconds to pick up and stack a full cord of 16 ft. length wood. Think of the man-hours, truck time and crane time saved by such speed and efficiency! Wherever pulpwood is handled you'll find Blaw-Knox Grapples on the job.

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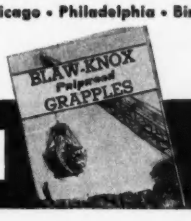

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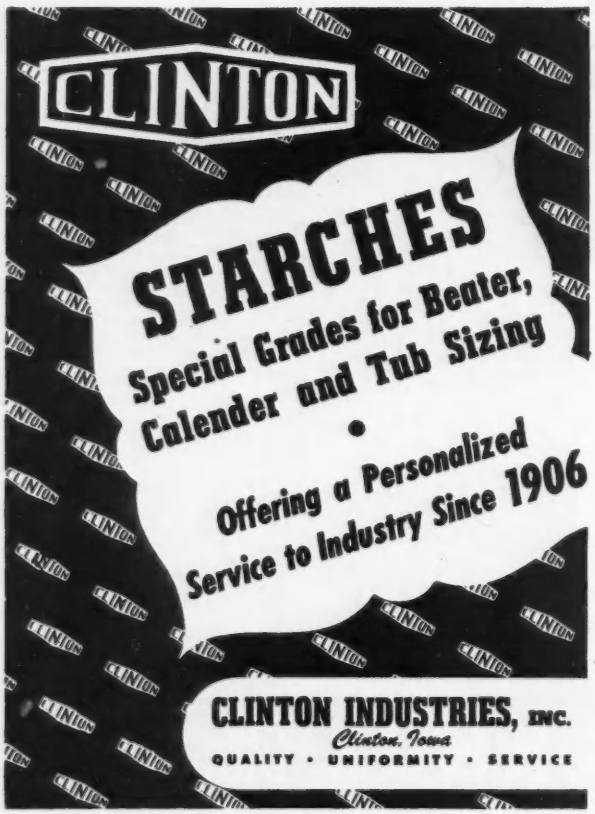
Covington, Virginia
Tyrone, Pennsylvania
Williamsburg, Pennsylvania
Charleston, South Carolina



WHERE TO BUY

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Monsanto Chemical Co.
Norton Co.
Raybestos-Manhattan Inc. Manhattan Rubber Division

ADHESIVES
American Anode Incorporated
American Resinous Chemicals Corp.
Arabol Mfg. Co.
Flintkote Company
Monsanto Chemical Co.
National Adhesives Division of National Starch Products, Inc.
Philadelphia Quartz Co.
Stein, Hall & Co., Inc.
United States Rubber Co.

AGITATORS
Appleton Machine Co.
Biggs Boiler Works Co.
Dilts Machine Works, Inc.
Dorr Company
Downingtown Mfg. Co.
Hardinge Co., Inc.
Improved Paper Machy. Corp.
E. D. Jones & Sons Co.
D. J. Murray Mfg. Co.
Montague Machine Co.
Moore & White Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Valley Iron Works Co.

AIR CONDITIONING
Steamaire Company

ATOMIZERS
Steamaire Company

BAG MACHINES
Thomas W. Hall Co., Inc.
Potdevin Machine Co.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Weber, Herman G.

BALING MACHINES
Thomas W. Hall Co.

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Allis-Chalmers Mfg. Co.
Appleton Machine Co.
Carthage Machine Co.
Fibre Making Processes, Inc.
D. J. Murray Mfg. Co.
Valley Iron Works Co.

BARS
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The Moore & White Co.
Noble & Wood Machine Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

BEARINGS
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Magnus Metal Corp.
Montague Machine Works
Raybestos-Manhattan Inc. Manhattan Rubber Division
Rollway Bearing Co.
Shartle Brothers Machine Co.
SKF Industries, Inc.
Timken Roller Bearing Co.
Valley Iron Works Co.
T. B. Woods' Sons Company

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Black-Clawson Company
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Hermann Mfg. Co.
E. D. Jones & Sons Co.
Noble & Wood Machine Co.
J. J. Ross Company
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works

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Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Farrel-Birmingham Co., Inc.
E. D. Jones & Sons Co.
Noble & Wood Machine Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

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The Cincinnati Rubber Mfg. Co.
Raybestos-Manhattan Inc. Manhattan Rubber Division
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United States Rubber Co.
T. B. Wood's Sons Company
Worthington Pump & Machy. Corp.

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Improved Paper Machy. Corp.
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Moore & White Co.
Niagara Alkali Co.
Noble & Wood Machine Co.
Pennsylvania Salt Co.
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Shartle Brothers Machine Co.

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Montague Machine Co.
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Murray Mfg. Co., D. J.
Walworth Company

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Kalamazoo Tank & Silo Co.
Valley Iron Works Co.

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Lobdell Car Wheel Co.
Moore & White Co.
Perkins & Son, Inc., B. F.
J. J. Ross Company
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works
Waldron Corp., John

CASEIN
Packing Products Co.

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Dilts Machine Works
Downingtown Mfg. Co.
Farrel-Birmingham Co.
Grinnell Company
Hamblet Machine Co.
Hardinge Co., Inc.
E. D. Jones & Sons Co.
Lobdell Car Wheel Co.
Magnus Metal Corp.
Montague Machine Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Union Machine Company
Union Screen Plate Co.
Valley Iron Works Co.

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Ross, J. O., Eng. Co.
Shartle Brothers Machine Co.

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Amer. Resinous Chemicals Corp.
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Calco Chemical Co.
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Diamond Alkali Co.
Dispersion Process, Inc.
Dow Chemical Company
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Falls Chemical Products Co.
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Geigy Co., Inc.
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Paper Makers Chemical Department. Hercules Powder Co.
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Stauffer Chemical Company
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Magnus Chemical Co.
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Nichols Engrg. & Research Corp.
Oakite Products, Inc.
Pennsylvania Salt Mfg. Co.
Philadelphia Quartz Co.
Pittsburgh Plate Glass Co., Columbia Chemical Division
Solvay Sales Corp.
Wyandotte Chemicals Corp., J. B. Ford Division

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Rodney Hunt Machine Co.
Moore & White Co.
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South Wabash Engrg. Co.
Waldron Corporation, John
Weber, Herman G.

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Ingersoll-Rand Co.
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Worthington Pump & Machy. Corp.

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Hardy, George F.
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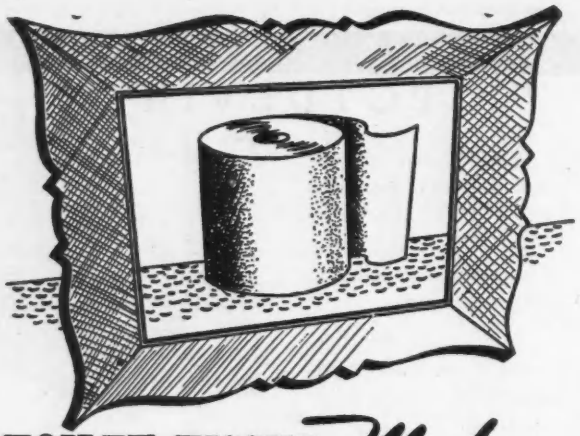

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Shartle Brothers Machine Co.

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Montague Machine Co.
Raybestos-Manhattan Inc.
Manhattan Rubber Division
Rotogravure Engrg. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers
United States Rubber Co.
Westinghouse Electric Corporation

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J. J. Ross Company
Ross, J. O., Engineering Corp.
Rotogravure Engrg. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Valley Iron Works Co.

DRIVES
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Appleton Machine Co.
Bird Machine Co.
Black-Clawson Company
Davis, Frank H., Co.
De Laval Steam Turbine Co.
Dilts Machine Works
Downingtown Mfg. Co.
Farrel-Birmingham Co.
General Electric Company
Rodney Hunt Machine Co.
Montague Machine Co.
Moore & White Co.
Murray, D. J., Mfg. Co.
Noble & Wood Machine Co.
Pusey & Jones Corp.
J. J. Ross Company
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
T. B. Wood's Sons Co.
Valley Iron Works Co.
Westinghouse Electric Corporation

DRUMS
Fibre Making Processes, Inc.

DUSTERS
Appleton Machine Co.
Downingtown Mfg. Co.
Fibre Making Processes, Inc.
E. D. Jones & Son Co.
Moore & White Co.
Noble & Wood Machine Co.
Norwood Engrg. Co.
D. J. Murray Mfg. Co.

DYESTUFFS
Calco Chemical Co.
Ciba Company
E. I. du Pont de Nemours & Co., Inc.
Geigy Co., The
General Dyestuff Corp.
National Aniline Division, Allied Chemical & Dye Corp.
Paper Makers Chemical Department, Hercules Powder Co.
C. K. Williams & Co.
Witco Chemical Co.

EMBOSSING ROLLS
Northern Engraving & Mch. Co.
Roehlen Engraving Co.

EVAPORATORS
Black-Clawson Company
Goslin-Birmingham Mfg. Co., Inc.
Murray, D. J., Mfg. Co.
Swenson Evaporator Co., Div. of Whiting Corp.

FANS
General Electric Co.
B. F. Perkins & Son, Inc.
Ross Engineering Co., J. O.

FEEDERS
Fibre Making Processes, Inc.
Hardinge Co., Inc.
Merrick Scale Mfg. Co.
Leeds & Northrup
Wallace & Tiernan

FELTS
Appleton Woolen Mills
Asten-Hill Mfg. Co.
Bloomfield Woolen Co.
Bulkley, Dunton Pulp Co., Inc.
Draper Bros. Corp.
Huyck & Son, F. C.
Lockport Felt Co.
Mt. Vernon-Woodbury Mills, Inc.
Morey Paper Mill Supply Co.
Orr Felt & Blanket Co.
Shuler & Benninghofen
Waterbury Felt Co.
Waterbury, H., & Sons Co.

FELT CONDITIONERS
Steamaire Company

FELT GUIDES
Moore & White Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Waldron Corp., John

FILLERS
American Colloid Co.
Amer. Cyanamid & Chem. Corp.
Amer. Resinous Chemicals Corp.
Johns-Manville Sales Corp.
W. H. Loomis Talc Corp.
Vanderbilt Co., R. T.
Witco Chemical Co.

FILTERS
Cochrane Corp.
Hardinge Co., Inc.
Moore & White Co.
J. O. Ross Engrg. Corp.
Witco Chemical Co.
Worthington Pump & Machy. Corp.

FLOORING, GRATING & TREADS
Hendrick Mfg. Co.
Kemp
Norton Co.
Raybestos-Manhattan Inc.
Manhattan Rubber Division
United States Rubber Co.

FORMING MACHINES
Downingtown Mfg. Co.
Noble & Wood Machine Co.
Oliver United Filters
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
South Wabash Engrg. Co.

FRICTION MATERIALS
Johns-Manville Sales Corp.

FREENESS TESTERS
Testing Machines, Inc.

GEARS
Black-Clawson Company
De Laval Steam Turbine Co.
Downingtown Mfg. Co.
Farrel-Birmingham Co.
E. D. Jones & Sons Co.
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

GRINDERS
Carthage Machine Co.
Farrel-Birmingham Co.
Lobdell Car Wheel Co.
Montague Machine Co.
Norton Company
Samuel C. Rogers and Company
The Sandy Hill Iron & Brass Wks.

GRINDING WHEELS
The Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc.
Norton Company
United States Rubber Co.

HEATING, VENTILATING AND AIR CONDITIONING
The Appleton Machine Co.
Armstrong Machine Works
Cochrane Corp.
E. D. Jones & Sons Co.
General Electric Co.
Grinnell Company
Leeds & Northrup
D. J. Murray Mfg. Co.
Noble & Wood Machine Co.
Ross Engineering Corp., J. O.
Shartle Brothers Machine Co.
Stickle Steam Specialties Co.
Valley Iron Works Co.
Worthington Pump & Machy. Corp.

HOISTS
Appleton Machine Co.
Dilts Machine Works
Rodney Hunt Machine Co.
Ingersoll-Rand Co.
E. D. Jones & Sons Co.
Reading Chain & Block Corp.

HOSE (Air, Water, Suction, etc.)
The Cincinnati Rubber Mfg. Co.
Raybestos-Manhattan Inc.
Manhattan Rubber Division
United States Rubber Co.

WHERE TO BUY

HUMIDITY CONTROL
Steamaire Company

INSTRUMENTS, TESTING AND MEASURING
Bauer Brothers Co.
N. P. Bowsher
The Bristol Company
Cochrane Corp.
The Foxboro Company
General Electric Company
W. & L. B. Gurley
Leeds & Northrup Company
National Technical Laboratories
B. F. Perkins & Son
Taber Instrument Corp.
Taylor Instrument Cos.
Testing Machines, Inc.
Wallace & Tiernan Instrument Co.

INSULATION
Johns-Manville Sales Corp.

JOINTS
Perfecting Service Company

JORDAN FILLINGS
Appleton Machine Co.
Bahr Brothers Mfg. Co.
E. D. Jones & Sons Co.
Noble & Wood Machine Co.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

KNIVES
Black-Clawson Company
Dilts Machine Works, Inc.
Hamblet Machine Co.
E. D. Jones & Sons Co.
Valley Iron Works Co.

KNOTTERS
Fibre Making Processes, Inc.

LABORATORY EQUIPMENT
Appleton Machine Co.
Bauer Brothers Co.
The Biggs Boiler Works Co.
W. H. & L. D. Betz
Dilts Machine Works
E. D. Jones & Sons Co.
Leeds & Northrup Company
National Technical Laboratories
Noble & Wood Machine Co.
Taber Instrument Co.
Taylor Instrument Companies
Testing Machines, Inc.
Valley Iron Works

LAY BOYS
Hamblet Machine Co.
Moore & White Co.
Shartle Brothers

LINTER COTTON
The Railway Supply & Mfg. Co.

LUBRICANTS
Gulf Oil Corporation
Gulf Refining Co.
Sinclair Refining Co.
Socony-Vacuum Oil Co., Inc.
Sun Oil Company
The Texas Company
Tide Water Associated Oil Co.

LUBRICATORS
Hills-McCanna Co.

MATERIAL HANDLING
Northwest Engrg. Co.
Reading Chain & Block Company

MICROMETERS & CALIPERS
Farrel-Birmingham Co.
Montague Machine Co.
Lobdell Car Wheel Co.
Testing Machines, Inc.
Walker-Goulard-Plehn Co.

MOISTENING EQUIPMENT
The Spray Engineering Co.
Steamaire Company

MOISTURE CONTENT CONTROL
Steamaire Company

MOTORS AND GENERATORS
Allis-Chalmers Mfg. Co.
Continental Electric Co.
De Laval Steam Turbine Co.
General Electric Co.
Ingersoll-Rand Co.
Reliance Electric & Engrg. Co.
Westinghouse Electric Corporation

NOZZLES
Steamaire Company

PACKING BOXES
Johnson Corporation
Shartle Brothers Machine Co.

PACKING
Johns-Manville Sales Corp.
The Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc.
United States Rubber Co.

PAPER MACHINES
Bagley & Sewall Co.
Black-Clawson Company
Downingtown Mfg. Co.
Thomas W. Hall Co.
Moore & White Co.
Pusey & Jones
J. J. Ross Company
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

PAPER MACHINE SLICES
Black-Clawson Company
E. D. Jones & Sons Co.
Montague Machine Co.
The Sandy Hill Iron & Brass Wks.
Valley Iron Works Co.

PAPER MILL BUILDERS
Merritt-Chapman & Scott Corp.
The Rust Engrg. Co.

PAPER TUBE MACHINERY
Dietz Machine Works
Thomas W. Hall Co.
Hudson Sharp Machine Company
Langston Co., Samuel M.
South Wabash Engrg. Co.

PASTING MACHINES
Black-Clawson Company
Davis, Frank H., Co.
Murray, D. J., Mfg. Co.
Moore & White Co.
Potdevin Machine Co.
Shartle Brothers Machine Co.
South Wabash Engrg. Co.
Waldron Corp., John

PENSTOCKS, WELDED STEEL
The Biggs Boiler Works Co.

PERFORATED METAL
Allis-Chalmers Mfg. Co.
Harrington & King Perforating Co.
Hendrick Mfg. Co.

PIPE
Black-Clawson Company
Crane Company
Deublin Company
Grinnell Company
Johns-Manville Sales Corp.
Shartle Brothers Machine Co.
Stowe-Woodward, Inc.
Taylor Forge & Pipe Works
Walworth Company

PLATERS
Perkins & Son, Inc., B. F.

PLATES
Black-Clawson Company
Hendrick Mfg. Co.
J. O. Ross Engrg. Corp.
Shartle Brothers Machine Co.
Timken Roller Bearing Co.

PLATE WORK (Steel & Alloy)
The Biggs Boiler Works Co.

PLUGS
Black-Clawson Company
E. D. Jones & Sons Co.
The Noble & Wood Machine Co.
Shartle Brothers Machine Co.

PRESSURE VESSELS, STEEL AND ALLOY
The Biggs Boiler Works Co.

PRESSES
Black-Clawson Company
Dietz Machine Works
Farrel-Birmingham Co.
Fibre Making Processes, Inc.
Thomas W. Hall Co.
Hudson-Sharp Machine Co.
Paper Converting Machine Co., Inc.
Potdevin Machine Co.
Rotogravure Engineering Co.
Shartle Brothers
South Wabash Engrg. Co.
Valley Iron Works Co.
Waldron Corp., John
Weber, Herman G.

PULPERS
Bauer Brothers Co.

PULPS
Andersen Co., J.
Bulkley, Dunton Pulp Co., Inc.
Gottesman & Co., Inc.
Elof Hansson, Inc.
Lyddon & Co. (America) Inc.
Parsons & Whittemore, Inc.
Perkins-Goodwin Co.
Price & Pierce, Ltd.
Pulp and Paper Trading Co.

PULPSTONES
Norton Company

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ROLLS OF ALL KINDS

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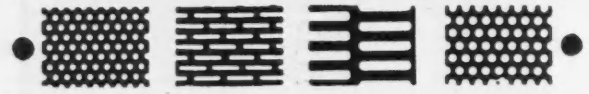

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RHINO —an extremely tough and strong core with a low cost that meets the market for a standard product giving superior service.

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GARWOOD, N. J. ROCKINGHAM, N. C. LOWELL, MASS.

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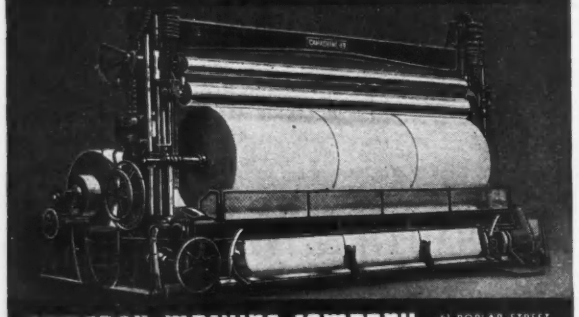

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WHERE TO BUY

PUMPS
Allis-Chalmers Mfg. Co.
Black-Clawson Company
Buffalo Pumps, Inc.
Dorr Company
Downingtown Mfg. Co.
De Laval Steam Turbine Co.
Hardinge Co., Inc.
Hills-McCanna Co.
Ingersoll-Rand Co.
Johnson Corp.
Moore & White Co.
Morris Machine Works
Nash Engineering Co.
Noble & Wood Machine Co.
Paper Converting Mch. Co.
J. J. Ross Company
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Steamaire Company
Warren Steam Pump Company
Worthington Pump & Mchy. Corp.

RAG CUTTERS
Taylor-Stiles & Co.

RECOVERY SYSTEMS
Bulkley, Dunton Pulp Co., Inc.
Rodney Hunt Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Pusey & Jones
Ross Engineering Corp., J. O.
Valley Iron Works Co.

REELS
Black-Clawson Company
Downingtown Mfg. Co.
De Laval Steam Turbine Co.
Hudson Sharp Machine Company
The Kohler System Company
Montague Machine Co.
Moore & White Co.
Paper Converting Mch. Co.
Rodney Hunt Machine Co.
Rotogravure Engrg. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
The Smith & Winchester Mfg. Co.

REFINERS
Appleton Machine Co.
Bahr Brothers Mfg. Co.
Bauer Brothers Co.
Dilts Machine Works
The Hermann Manufacturing Co.
E. D. Jones & Sons Co.
Murray, D. J., Mfg. Co.
Noble & Wood Machine Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Sprout, Waldron & Co.
Sutherland Refiner Corp.
Valley Iron Works

REGULATORS
Allis-Chalmers Mfg. Co.
Armstrong Machine Works
Bird Machine Company
The Bristol Company
The Brown Instrument Co.
Cochrane Corp.
The Foxboro Company
Jones, E. D., & Sons Co.
General Electric Co.
Johnson Corp.
Leeds & Northrup Company
National Technical Laboratories
Noble & Wood Machine Co.
Shartle Brothers
Stickle Steam Specialties Co.
Taylor Instrument Companies
Wallace & Tiernan
Westinghouse Electric Corporation

RESINS
Amer. Cyanamid & Chemical Corp.
Amer. Resinous Chemicals Corp.
Monsanto Chemical Co.
The Resinous Prod. & Chem. Co.

ROLLS
Appleton Machine Co.
Black-Clawson Company
Downingtown Mfg. Co.
Farrel-Birmingham Co.
Improved Paper Machy. Corp.
Lobdell Co.
Montague Machine Co.
D. J. Murray Mfg. Co.
Noble & Wood Machine Co.
Perkins, B. F., & Sons Co.
Philbrick Engrg. & Machine Co.
Pusey & Jones Corp.
Raybestos-Manhattan Inc.
Manhattan Rubber Division
Roehlen Engraving Co.
J. J. Ross Company
Rodney Hunt Machine Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Sinclair Co.
Smith & Winchester Mfg. Co.
Stearns Magnetic Mfg. Co.
Stowe-Woodward, Inc.
United States Rubber Co.
Valley Iron Works Co.
Waldron Corp., John

ROLL COVERS
The Cincinnati Rubber Mfg. Co.
Stowe-Woodward, Inc.

ROLL STANDS
Cameron Machine Co.
The Kohler System Company
Moore & White Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
Shartle Brothers Machine Co.
South Wabash Engrg. Co.

ROOFING MATERIALS
Johns-Manville Sales Corp.

ROTARY BOILERS
Biggs Boiler Works

SATURATING MACHINES
Black-Clawson Company
Moore & White Co.
Noble & Wood Machine Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman G.

SCALES
Merrick Scale Mfg. Co.

SCREEN PLATES
Fitchburg Screen Plate Co.
Magnus Metal Corp.
Morey Paper Mill Supply Co.
Testing Machines, Inc.
Union Machine Co.
Union Screen Plate Co.

SCREENS
Allis-Chalmers Mfg. Co.
Appleton Wire Works
Appleton Machine Company
Bird Machine Company
Carthage Machine Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Harrington & King Perforating Co.
Hendrick Manufacturing Co.
E. D. Jones & Sons Co.
Montague Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
J. J. Ross Company
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Valley Iron Works Co.

SHEET MACHINES
Thomas W. Hall Co.
The Hermann Manufacturing Co.
Noble & Wood Machine Co.
Rotogravure Engrg. Co.
Valley Iron Works Co.

SHOWER PIPES
Bird Machine Company
A. E. Broughton & Co.
Downingtown Mfg. Co.
Improved Paper Machy. Corp.
Moore & White Co.
Shartle Bros. Mach. Co.
Smith & Winchester Mfg. Co.

SHREDDERS
Bauer Brothers Co.
Carthage Machine Co.

SIZING
Amer. Cyanamid & Chemical Co.
Amer. Resinous Chemicals Corp.
Black-Clawson Company
The Dow Chemical Company
du Pont, E. I., de Nemours & Co.
Flintkote Company
Monsanto Chemical Co.
National Oil Products Co.
Paper Makers Chemical Department, Hercules Powder Co.
Philadelphia Quartz Co.
Pioneer Salt Company
Socony-Vacuum Co.
Stein, Hall & Co., Inc.

SLIME CONTROL
Falls Chemical Products Co.
Magnus Chemical Co.

SLITTERS
Black-Clawson Company
Philadelphia Quartz Co.
Pioneer Salt Company
Socony-Vacuum Co.
Stein, Hall & Co., Inc.

SLITTERS
Black-Clawson Company
Cameron Machine Co.
Carthage Machine Co.
Dilts Machine Works
Downingtown Mfg. Co.
Thomas W. Hall Co., Inc.
Hamblet Machine Co.
Hudson Sharp Machine Company
Langston Co., Samuel M.
Moore & White Co.
D. J. Murray Mfg. Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
J. J. Ross Company
The Sandy Hill Iron & Brass Wks.
Smith & Winchester Mfg. Co.
South Wabash Engrg. Co.
Valley Iron Works Co.
Waldron Corp., John

SMOKE STACKS
The Biggs Boiler Works Co.

WHERE TO BUY

SOLENOID VALVES
Steamaire Company
SPRAYING EQUIPMENT
The Spray Engineering Co.
Steamaire Company
STAINLESS STEEL
Allegheny Ludlum Steel Co.
The Congdon & Carpenter Co.
Eastern Stainless Steel Corp.
Industrial Steels, Inc.
STARCH
Amer. Cyanamid & Chemical Corp.
Clinton Industries, Inc.
National Starch Products, Inc.
Stein, Hall & Co., Inc.
STATIC ELIMINATORS
Steamaire Company
STEAM SPECIALTIES
Babcock & Wilcox Co.
Cochrane Corp.
Johnson Corp.
Perfecting Service Company
Shartle Bros. Mch. Co.
Stickle Steam Specialties Co.
STEEL TANKS
The Biggs Boiler Wks. Co.
STRAPPING & STRAPPING MACHINES
Acme Steel Company
The Stanley Works
STUFF CHESTS
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Valley Iron Works Co.
SUCTION BOXES
Black-Clawson Company
A. E. Broughton & Co.
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Westinghouse Electric Corp.
SULPHUR
Amer. Cyanamid & Chemical Corp.
Stauffer Chemical Company
Texas Gulf Sulphur Co.
Witco Chemical Company
SULPHUR BURNERS
Valley Iron Works Co.
SULPHUR DIOXIDE
Ansul Chemical Company
TALC
Amer. Cyanamid & Chemical Corp.
W. H. Loomis Talc Corp.
TANKS
Cochrane Corp.
E. D. Jones & Sons Co.
Kalamazoo Tank & Silo Co.
The Noble & Wood Machine Co.
Raybestos-Manhattan Inc.
Manhattan Rubber Division
Rodney Hunt
J. O. Ross Engrg. Corp.
Shartle Brothers Machine Co.
Stowe-Woodward, Inc.
United States Rubber Co.
Waldron Corp., John
TENSILE TESTERS
Testing Machines, Inc.
THICKENERS, DECKERS AND SAVEALLS
Bird Machine Company
Bulkley, Dunton Pulp Co., Inc.
Carthage Machine Co.
Dilts Machine Works
Dorr Co.
Downingtown Mfg. Co.
Hardinge Co., Inc.
Montague Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
J. J. Ross Company
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Valley Iron Works Co.
TITANIUM
E. I. du Pont de Nemours & Co.
Titanium Pigment Co.
R. T. Vanderbilt Co.
Witco Chemical Company
TOOLS
Acme Steel Company
Ingersoll-Rand Co.
The Stanley Works
Walworth Company
TRUCKS
Automatic Transportation Co.
TRAPS
Armstrong Machine Works
Cochrane Corp.
Crane Co.
Grinnell Company.
Johnson Corporation
Shartle Bros. Mch. Co.
TUBS
Rodney Hunt Machine Co.
Noble & Wood Machine Co.
Shartle Brothers
Valley Iron Works Co.
TURBINES
Allis-Chalmers Mfg. Co.
De Laval Steam Turbine Co.
General Electric Company
Hunt, Rodney, Mach. Co.
Westinghouse Electric Corp.
Worthington Pump & Machy. Corp.
USED EQUIPMENT
Frank H. Davis Company
Gibbs-Brower Co.
Thomas W. Hall Co.
Noble & Wood Machine Co.
Rotogravure Engrg. Co.
J. J. Ross Company
Ross Paper Machinery Co.
Shartle Brothers Machine Co.
VALVES
The Bristol Company
Cochrane Corp.
Crane Company
Dilts Machine Works
Fibre Making Processes, Inc.
The Foxboro Company
E. D. Jones & Sons Co.
Magnus Metal Corp.
D. J. Murray Mfg. Co.
Noble & Wood Machine Co.
The Permutit Company
William Powell Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Stickle Steam Specialties Co.
Taylor Instrument Companies
Valley Iron Works Co.
Walworth Company
VATS & VAT PARTS
Union Machine Co.
Union Screen Plate Co.
WASHERS
Bird Machine Company
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Wks.
Rodney Hunt Machine Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.
WATER CONDITIONING
Cochrane Corp.
The Permutit Company
WATER DISPERSIONS
American Anode, Inc.
WAXING MACHINERY
Black-Clawson Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman G.
WELDING EQUIPMENT
Allis-Chalmers Mfg. Co.
General Electric Company
Walworth Company
Westinghouse Electric Corp.
WET MACHINES
Black-Clawson Co.
Carthage Machine Co.
Downingtown Mfg. Co.
Moore & White Co.
Montague Machine Co.
Noble & Wood Machine Co.
Pusey & Jones Corp.
J. J. Ross Company
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
WINDERS AND REWINDERS
Black-Clawson Company
Cameron Machine Co.
Dietz Machine Works
Downingtown Mfg. Co.
Thomas W. Hall Co.
Hudson-Sharp Mach. Co.
Langston Co., Samuel M.
The Kohler System Company
Montague Machine Co.
Moore & White Co.
Paper Converting Mch. Co.
Potdevin Machine Co.
Pusey & Jones Corp.
Rotogravure Engrg. Co.
J. J. Ross Company
The Sandy Hill Iron & Brass Wks.
Smith & Winchester Mfg. Co.
South Wabash Engrg. Co.
Waldron Corp., John
WIRES
Appleton Wire Works
Black-Clawson Company
Bulkley, Dunton Pulp Co., Inc.
Cheney Bigelow Wire Works
Hayden Wire Works
International Wire Works
Lindsay Wire Weaving Co.
Shartle Brothers Machine Co.
WOOD PEELERS
Nekoosa Edy. & Mch. Wks., Inc.
WOOD SPLITTERS
Carthage Machine Co.

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A whale can hold his breath for a considerable period of time but he must occasionally come to the surface and "blow off." When the lookout in the crow's nest sees those bubbles the crew knows they have a job to do — and to do quickly.

When a machine tender sees the sheet begin "blowing" he knows that he has a job cut out for him. The wet felt must not only get rid of the water but it must also *breathe*. Unless the air can circulate freely through the mesh of the felt it must "blow" against the sheet, leaving wet splotches. These result in frequent breaks, poor formation, curtailed production and excessive consumption of steam at the drier rolls.

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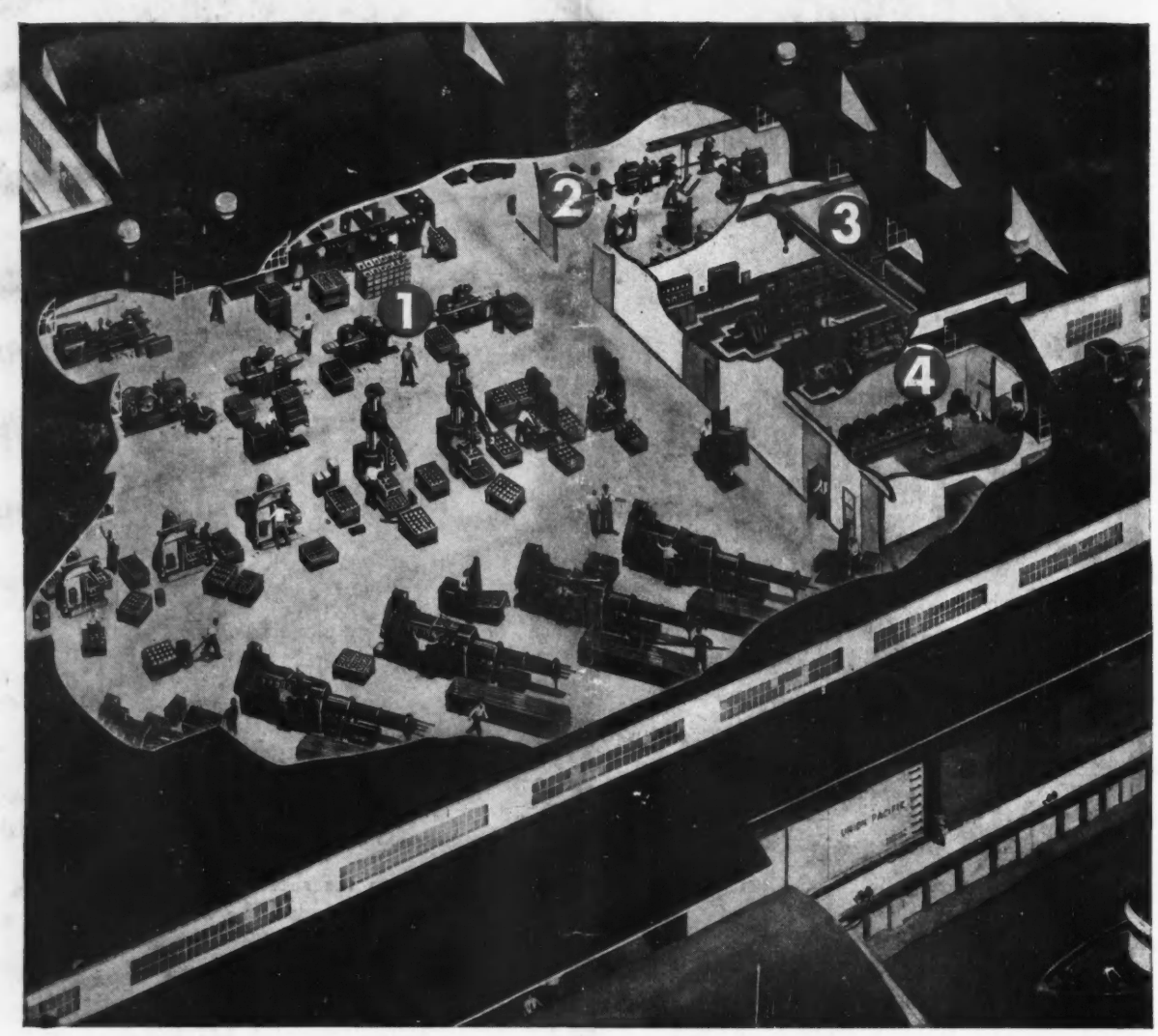

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